

BEAR RIVER COMMISSION



NINETEENTH BIENNIAL REPORT



2015-2016

COVER: LAST CHANCE DIVERSION DAM PROJECT

Photo #1 - Old timber crib dam. This dam was constructed in 1908. It was 175 feet wide and 16 feet tall.

Photo #2 - New roller-compacted concrete stepped diversion structure under construction.

Photo #3 - Completed new Last Chance Diversion Dam with water flowing. Construction was completed in May 2016 at a cost of \$3.1 Million. The dam is 180 feet wide and 26 feet tall.

* Photos courtesy of Franson Civil Engineers and Whitaker Construction

NINETEENTH BIENNIAL REPORT

**BEAR RIVER
COMMISSION**

2015-2016

For the Biennium October 1, 2014

to

September 30, 2016

BOUNTIFUL, UTAH

November 2017



**BEAR RIVER
COMMISSION**

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CHAIR
Jody Williams

**IDAHO
COMMISSIONERS**
Gary Spackman
Kerry Romrell
Curtis Stoddard

**UTAH
COMMISSIONERS**
Eric Millis
Blair Francis
Charles W. Holmgren

**WYOMING
COMMISSIONERS**
Pat Tyrrell
Adrian Hunolt
Tim Teichert

ENGINEER-MANAGER
Don A. Barnett

November 30, 2017

Donald Trump
President of the United States
Executive Office of the President
The White House
1600 Pennsylvania Avenue NW
Washington, D.C. 20500

Dear President Trump:

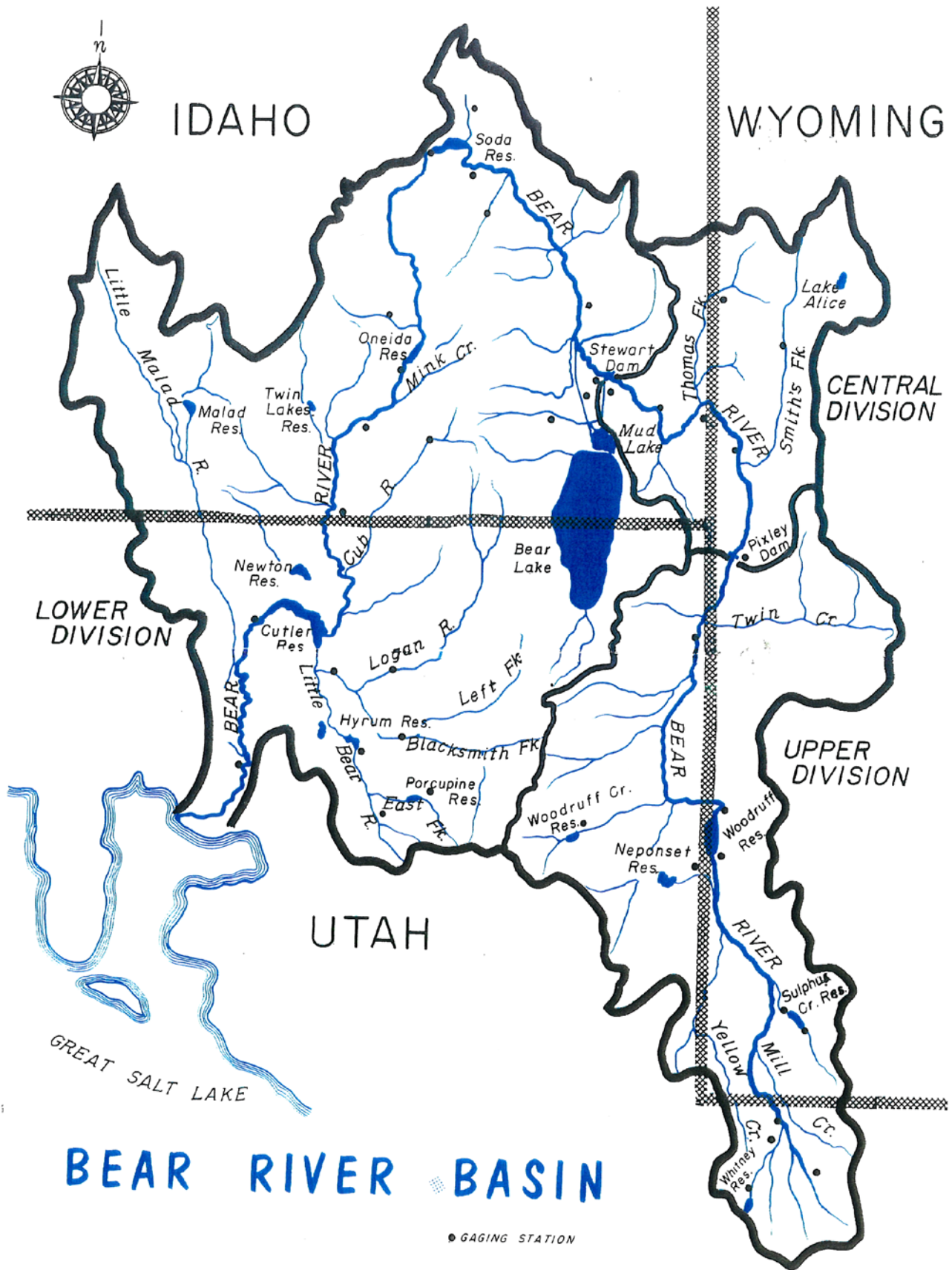
Submitted herewith is the Nineteenth Biennial Report of the Bear River Commission, as required by Article III.D.2 of the Amended Bear River Compact.

A copy of the report is being transmitted to the governor of each signatory state to the Bear River Compact.

Sincerely,

Don A. Barnett
Engineer-Manager

Enclosure



BEAR RIVER BASIN

● GAGING STATION

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NINETEENTH BIENNIAL REPORT BEAR RIVER COMMISSION

Overview

SYNOPSIS

The biennial period had below normal streamflow and water supply. Though streamflow in 2014 was near normal levels, streamflow in 2015 and 2016 were drier than normal (though not as dry as 2012 and 2013). Distribution in 2015 and 2016 in the Central Division was administered under a water emergency pursuant to the Compact. No water emergencies were declared in 2015 or 2016 in the Upper and Lower Divisions. Distribution in all three divisions was done with great cooperation between administrators and users of waters within the Bear River system.

This biennial report is divided into three chapters. This first chapter, the Overview Chapter, provides a background of the Compact and the Commission and its general activities. The second and third chapters provide specific water supply and streamflow distribution information for the 2015 and 2016 water years, respectively.

BACKGROUND

The Bear River Compact determines the rights and obligations of the signatory states of Idaho, Utah and Wyoming with respect to the waters of the Bear River. Federal consent to the Compact was given by the Congress and signed by President Eisenhower on March 17, 1958. The Bear River Commission was created by the Compact and has been organized as an interstate agency to administer the Compact.

The Bear River Compact was amended in accordance with Article XIII of the Original Compact (Article XIV, Amended Compact) following several years of study and review of Compact provisions. Principal amendments and other changes are discussed elsewhere in this report. Amendments to the Compact were agreed to by representatives of the compacting states on December 22, 1978, and State Amending Legislation was approved in each state in the spring of 1979. Congressional consent was given by the 96th Congress by Public Law 96-189 and signed into law by President Carter on February 8, 1980.

Article III.D.2 of the Compact was amended to provide that the Bear River Commission compile a biennial report rather than an annual report as required in the original Compact. Annual reports were compiled in each of the 21 years (1958-78) and were transmitted to the President of the United States and to the Governors of the signatory states. This is the Nineteenth Biennial Report covering the 2015 and 2016 water years (October 1, 2014, to September 30, 2016).

River operation under the Bear River Compact and activities of the Bear River Commission during the 2015 and 2016 water years are summarized in this report, by year, in the two chapters which follow. This biennial report is organized so that the specific information for each water year is reported in separate chapters. Selected streamflow records are given in the chapters discussing each water year.

COMMISSION ORGANIZATION & MEMBERS

Ten commissioners, three representing each state and one representing the United States, constitute the Bear River Commission. The Federal representative serves as chairperson without a vote, while each of the other nine Commissioners has one vote. Figure O.1 lists the Bear River Commission membership as of October 1, 2014.

The Commission amended its bylaws on April 16, 1990. The amendments allowed for the creation of three standing committees of the Commission: the Management Committee, the Operations Committee, and the Records Committee. On November 18, 1997, the Commission again amended its bylaws and changed the name of the Records Committee to the Records & Public Involvement Committee. A Water Quality Committee was also created on November 18, 1997. These standing committees have duties as assigned to them by the Commission. Each state is allowed to designate its representatives to the committees, and in all committees votes are taken by state, with each state having one vote. These four committees met from time to time on an as-needed basis throughout this biennium. For the most part, they are advisory to the Commission.

The bylaws also provide for the creation of special committees which may be assigned tasks as deemed necessary. The Technical Advisory Committee (TAC) has been created by the Commission and serves the Commission as a whole (and each of the standing committees) on technical matters. The TAC is composed of state water agency personnel and is chaired by the Engineer-Manager of the Commission.

Bear River Commission Members
(as of October 1, 2014)

Officers

Chair ¹	Jody L. Williams, Salt Lake City, UT
Vice Chair ²	Kerry Romrell, Montpelier, ID
Secretary	Eric Millis, Salt Lake City, UT
Treasurer	Randy Staker, Salt Lake City, UT
Engineer-Manager	Don A. Barnett, Bountiful, UT

Members

Idaho

Gary Spackman.....	Boise, ID
Kerry Romrell.....	Montpelier, ID
Curtis Stoddard.....	Grace, ID

Utah

Eric Millis	Salt Lake City, UT
Blair Francis.....	Woodruff, UT
Charles W. Holmgren	Bear River City, UT

Wyoming

Sue Lowry ³	Cheyenne, WY
Sam Lowham.....	Evanston, WY
Gordon Thornock ⁴	Cokeville, WY

United States

Jody L. Williams.....	Salt Lake City, UT
-----------------------	--------------------

Management Committee

Gary Spackman.....	Boise, ID
Eric Millis	Salt Lake City, UT
Sue Lowry.....	Cheyenne, WY

Operations Committee

Sam Lowham	Evanston, WY
Blair Francis.....	Woodruff, UT
Kerry Romrell	Montpelier, ID

Records Committee

Charles Holmgren	Bear River City, UT
Curtis Stoddard	Grace, ID
Gordon Thornock	Cokeville, WY

¹ Jody Williams was appointed Federal Chair on October 16, 2014 to fill this vacant position.

² On April 21, 2015, Gordon Thornock was elected Vice Chairman.

³ Sue Lowry was replaced by Pat Tyrrell on June 10, 2016.

⁴ Gordon Thornock was replaced by Tim Teichert on June 10, 2016.

Figure O.1

MEETINGS

Four Regular or Annual Commission meetings were held during the biennium. The dates of the meetings are as follows:

November 25, 2014	Regular Meeting	Salt Lake City, Utah
April 21, 2015	Annual Meeting	Brigham City, Utah
November 17, 2015	Regular Meeting	Salt Lake City, Utah
April 19, 2016	Annual Meeting	Salt Lake City, Utah

Three of the four meetings during this biennium were held at the Utah Department of Natural Resources building in Salt Lake City, Utah, with the fourth being held at the Bear River Migratory Bird Refuge in Brigham City, Utah. At the annual meetings held in April, elections were held and fiscal matters were addressed. A fiscal report for the biennial period, prepared by the Treasurer, has been made a part of this chapter. Formal minutes for all four of the Commission meetings have been approved and are available on the Commission's website (bearrivercommission.org).

COMMISSION ACTION AND ACTIVITIES

This section is to provide a brief accounting of significant actions or activities of the Commission during the biennial period separate and apart from specific streamflow measurement and distribution which are discussed elsewhere in this report. Greater details relative to specific actions or activities of the Commission are contained within the Commission's approved meeting minutes.

The first meeting of the biennial period was the Commission's regular fall meeting held on November 25, 2014, in Salt Lake City, Utah. The Commission meeting commenced with an introduction of the Commission's new Federal Chair, Jody Williams. Ms. Williams was appointed by President Obama on October 16, 2014. Though new as a Commissioner, she is certainly no stranger to the Bear River or the Commission, having been involved in one capacity or another most of her life. The Commission then turned its attention to financial matters and received a FY2014 year-end financial report. The Commission then received a report on Utah's Bear River Development Project, including a review of a recent report published on this matter. The Commission also received a report on efforts to consolidate and improve grazing practices and rangeland management in Rich County, as well as a brief report from the Bear River Migratory Bird Refuge relative to the commencement of its comprehensive management planning effort. There was also a report on the very successful Mud Lake Symposium which had been held earlier in May. The Operations Committee reported that no water emergency had been declared in any of the three river divisions, and there was a discussion of the significant effect of unusual late summer rains. With the completion of the 2009 Depletion Update effort, the Management Committee assigned the TAC to commence a review of the methodologies employed therein and seek a way to create greater uniformity in the methodologies employed by each of the three states. A more detailed report on this meeting can be found in the Commission's meeting minutes.

The second meeting of the Commission during this biennial period was the Commission's annual meeting which was held on April 21, 2015, at the Bear River Migratory Bird Refuge in Brigham City, Utah. Prior to the meeting, attendees participated in a luncheon celebrating the 20-year anniversary of the Bear Lake Settlement Agreement. At the meeting, Gordon Thornock was elected as Vice Chair of the Commission. A financial report was provided and the FY 2016 budget was approved. The Commission then received a very dire report on the water supply outlook for 2015. The Commission also heard a report on the new Cache County Water Master Plan. The Commission then heard reports from the Records & Public Involvement Committee, the Operations Committee and the Water Quality Committee, as well as state reports. A more detailed report of this meeting can be found in the Commission's meeting minutes.

The third meeting of the biennial period was the Commission's regular fall meeting held on November 17, 2015, in Salt Lake City, Utah. A report was provided by the Commission's Treasurer on the closeout of the FY2015 income and expenses. This was followed by a report on Wyoming's weather modification study and an update on the proposed Paris Hills Phosphate Mine specific to their water study and plans which identified that groundwater pumping may need to reach 16,000 gallons per minute. There was a report on the Twin Lakes FERC EIS which had been of interest to the Commission over a number of years. Based on recent FERC action, it appeared that the project would not proceed. A report was provided on the TAC's efforts to update the depletion methodologies, as well as reports from the Commission's standing committees. More detail on specific discussions of the Commission and reports can be found in the Commission's meeting minutes.

The fourth and final meeting of the Commission during the biennial period was held on April 19, 2016, in Salt Lake City, Utah. The Commission heard a financial report and approved the proposed budget for FY2017. The Commission received a report on the 2016 water supply outlook which appeared to be close to normal. It also heard a report on the initiation of Utah's Bear River comprehensive management planning process. The Commission then received a report from the TAC with proposed changes to the Commission's depletion estimate procedures relative to municipal uses and irrigation depletions. The Commission accepted the proposed changes to the depletion procedures on these two items. A presentation was also made titled "Bear River Compact 101 – Bear Lake Elevations" which discussed the various operational factors which control storage and storage use from Bear Lake, as well as other storage affected by Bear Lake elevations. The Commission then heard reports from each of its standing committees, as well as state reports. Greater detail relative to the Commission meeting and activities can be found in the Commission's meeting minutes.

In recognition of the Commission's commitment to broaden its public outreach, it determined to hold a tour of the Upper Bear River area. The tour was held on June 29, 2016, and included stops at Sulphur Creek Reservoir, the Hayden Fork SNOTEL site, the Utah-Wyoming State Line gage, the Evanston City raw water intake, the Evanston City water treatment facility, the Chapman Canal and gage, Woodruff Narrows Reservoir and the Randolph Woodruff Canal. The area of the tour included most of the Upper Division. Approximately 45 people participated in the tour, including members of the Commission and those from various sectors and interests in the Bear River. The Commission believes that the tour was very successful and met the designed purposes. On the next page is a photo of the tour participants on the bridge over the Bear River at the Utah-Wyoming State Line gage.



**Photo of Upper Bear River Basin tour participants on a bridge
at the Bear River near UT-WY state line USGS gage**

June 29, 2016

Photo courtesy of Mark Tesoro with the Uinta County Herald

FINANCIAL REPORT

The fiscal year of the Commission begins on July 1 of a given year and ends on June 30 of the following year. The expenditures for the period are shown in Figure O.2 and were presented to the Commission by the Treasurer.

The Commission records were audited by an auditor. The audit of accounts and records, including a statement of budget revenue and disbursements for the biennium ending June 30, 2016, is a part of the formally accepted Commission minutes.

Expenses incurred by the Bear River Commission are paid equally by the signatory states. Compensation and expenses of the federal representative, each commissioner, and each adviser are paid by the government which they represent.

Financial Report June 30, 2016

	ACTUAL FY 15	ACTUAL FY 16	PROPOSED FY 17	PROPOSED FY 18
<u>ACTUAL/ANTICIPATED INCOME</u>				
Idaho Assessment	40,000.00	40,000.00	40,000.00	40,000.00
Utah Assessment	40,000.00	40,000.00	40,000.00	40,000.00
Wyoming Assessment	40,000.00	40,000.00	40,000.00	40,000.00
State Water Quality Agencies	8,151.00	5,434.00	8,254.00	8,254.00
Interest on Savings	695.98	990.23	800.00	800.00
TOTAL	\$128,846.98	\$126,424.23	\$129,054.00	\$129,054.00
<u>ACTUAL/ANTICIPATED EXPENSES</u>				
Stream Gaging	\$48,540.00	\$40,755.00	40,755.00	41,270.00
Personal Services, Engineer-Manager	61,700.00	63,088.00	64,350.00	65,640.00
Travel Expenses	929.78	1,005.01	1,200.00	1,200.00
Office Expenses	462.36	942.84	1,600.00	1,600.00
Printing Biennial Report	0.00	63.00	1,000.00	1,000.00
Treasurer Bond & Audit	100.00	100.00	1,400.00	1,400.00
Printing	636.40	1,680.70	1,600.00	1,600.00
Real-time Web Hosting	7,215.99	9,015.99	8,400.00	8,400.00
Clerical	7,600.00	8,180.02	8,340.00	8,510.00
Tour	0.00	1,979.84	0.00	0.00
Contingency	0.00	1,304.17	2,000.00	2,000.00
TOTAL	\$127,184.53	\$128,114.57	130,645.00	132,620.00

Figure O.2

THE BEAR RIVER

The Bear River drains an area of 6,900 square miles in southwestern Wyoming, northern Utah and southeastern Idaho. Its headwaters are but 90 miles from its mouth, yet it meanders 500 miles in a circuitous course in reaching the Great Salt Lake. In its travels, it makes five state line crossings in the three states. The map found on page ii shows the major features of the Bear River system.

The Bear River is not only the largest tributary to the Great Salt Lake, but is the largest stream in the North American Continent that does not flow to an ocean. Prior to settlement and irrigation development, the annual discharge of the river into the Great Salt Lake averaged an estimated 1,750,000 acre-feet. Settlement of lands adjacent to the Bear River began in about 1860, and power development began in 1907. In 1911, Bear Lake was converted into a storage reservoir by constructing inlet and outlet canals connecting the lake and the river.

Approximately 500 irrigation organizations own and operate separate irrigation systems in the Basin, supplying irrigation water for half a million acres of land. Six hydroelectric plants are in operation on the main stem of the Bear River.

In addition, a municipality, numerous communities, individual families, a variety of industrial and miscellaneous users, and waterfowl refuges withdraw water from the Bear River, its tributaries and its tributary ground water. Today, on an average, nearly a million acre-feet of water still flows annually into the Great Salt Lake from the Bear River.

BEAR RIVER COMPACT

The Bear River Compact is a document voluntarily adopted by the states which establishes the rights and obligations of Idaho, Utah and Wyoming with respect to the waters of the Bear River. The Compact became effective on March 17, 1958.

The main purposes of the Compact are outlined in paragraph A of Article I of the Compact, which states:

The major purposes of this Compact are to remove the causes of present and future controversy over the distribution and use of the waters of the Bear River, to provide for efficient use of water for multiple purposes, to permit additional development of the water resources of Bear River, and to promote interstate comity.

The Original (1958) Compact provided the following:

- Divided the Bear River into three main divisions: the Upper Division, the Central Division, and the Lower Division, with subdivisions or sections created in the Upper and Central Divisions. The Compact specifically identified which river flows and canal diversions are to be assigned to each of the divisions.

- Apportioned the direct flows of the Bear River and its tributaries between Utah and Wyoming in the Upper Division (upstream of Pixley Dam) and between Idaho and Wyoming in the Central Division (Pixley Dam to Stewart Dam).
- Did not specifically allocate the water in the Lower Division between the states of Idaho and Utah. The Compact did, however, provide a mechanism wherein a Utah water user may allege that because of diversions within Idaho, he is being deprived of water to which he is justly entitled and request distribution across the state line. If the Commission finds this to be the case, the Commission may declare a water emergency and establish a water delivery schedule in the Lower Division based upon priority of rights without regard to the state line.
- Defined the pre-compact storage rights for each of the three states in reservoirs above Bear Lake and established additional rights to store above Stewart Dam 36,500 acre-feet of Bear River water in any water year. This 36,500 acre-feet of storage is referred to as "Original Compact Storage" and was allocated to each of the states as follows:

Utah	17,750 acre-feet
Wyoming	17,750 acre-feet
Idaho	1,000 acre-feet
- Reserved a portion of the storage capacity in Bear Lake for primary use by, and protection of, irrigation uses and rights downstream from Bear Lake. This compact-provided-for "irrigation reserve" establishes minimum Bear Lake levels which correspond to upstream storage development, below which Bear Lake cannot be drawn down only for power purposes.

AMENDED BEAR RIVER COMPACT

Proposed amendments to the Bear River Compact were approved by the Commission in December 1978 and the Amended Compact became law on February 8, 1980. The Amended Compact replaces the original Compact. Amendments provide for the following principal changes to the 1958 Compact:

Amendment Highlights

- The allocation and distribution of direct flow rights between the various sections in the Upper and Central Divisions are unchanged from the 1958 Compact.
- Additional storage is granted above Bear Lake for 74,500 acre-feet, of which 4,500 acre-feet is granted to Idaho and 35,000 acre-feet is granted each to Utah and Wyoming. This storage, plus water appropriated (including ground water) and applied to beneficial use after January 1, 1976, is limited to an annual depletion of 28,000 acre-feet, of which Idaho is allocated 2,000 acre-feet and Utah and Wyoming

are allocated 13,000 acre-feet each. This additional storage in the Upper and Central Division will not be allowed when the elevation of Bear Lake is below 5911 feet (Utah Power and Light datum).

- Additional rights are granted to store water in the Upper and Central Divisions which would otherwise be spilled or bypassed from Bear Lake when all other direct flow and storage rights are satisfied. These storage rights are allocated with equal priority as follows: 6 percent to Idaho, 47 percent to Utah and 47 percent to Wyoming.
- The method for the declaration of a water emergency in the Lower Division and the distribution of direct flow diversions by priority without regard to state line is unchanged from the 1958 Compact.
- The water not applied to beneficial use prior to January 1, 1976, including ground water tributary to the Bear River, is allocated on a depletion basis.
- In the Lower Division, Idaho is granted the first right to develop and deplete 125,000 acre-feet. Utah is granted the second right to develop and deplete 275,000 acre-feet. The next 150,000 acre-feet of water depletion will be divided equally between Utah and Idaho. All water in excess of the above allocations will be divided between Utah and Idaho, with Idaho receiving 30 percent and Utah 70 percent.

Compact Required Depletion Estimates

The Amended Bear River Compact, as referenced above, states that the new provisions allowing for additional storage and use of waters subsequent to January 1, 1976, are to be administered based on allowed new depletions. The Compact provides that Commission-approved procedures shall be adopted to make such depletion estimates. Working under the direction of the Commission, the Technical Advisory Committee (TAC) first prepared a depletion estimate in 1990. An update to the depletion estimates has now been prepared through 2009. Such estimates are memorialized in a Technical Memorandum titled *2009 Depletions Update*. At the April 2014 Commission meeting the Commission formally adopted these updated depletion estimates. The Commission's approved procedures which provide for depletion estimate calculations were also revised. The Commission-approved procedures direct that the latest depletion estimates should be included in the Biennial Report. Figure O.3 represents the most recent depletion estimates.

Bear River Commission
Estimated Annual Depletions¹
Changes from January 1, 1976, to December 31, 2009

ABOVE STEWART DAM

State	Allocation	Agricultural Depletions	M&I Depletions	Reservoir Evaporation	Total Depletions	Remaining Allocation
Utah	13,000	5,935	-5	841	6,771	6,229
Wyoming	13,000	2,407	401	197	3,005	9,995
Idaho	2,000	1,310	3	0	1,313	687

LOWER DIVISION

State	Allocation	Agricultural Depletions	M&I Depletions	Reservoir Evaporation	Total Depletions	Remaining Allocation
Idaho	125,000 ²	8,667	300	11	8,978	116,022
Utah	275,000 ³	-5,771	5,978	0	207	274,793

¹Any reductions in pre-1976 depletions are reflected in the above numbers.

²First right under Compact. Compact grants additional rights.

³Second right under Compact. Compact grants additional rights.

Figure O.3

ADMINISTRATION OF BEAR RIVER COMPACT

General

Provisions of the Compact are generally administered and enforced under the direction of the Bear River Commission. However, water rights within each state are adjudicated and administered in accordance with state law, subject to limitations provided in the Compact.

Seasonal daily records are collected on about 130 diversions above Bear Lake by state river commissioners under the direction of their respective State Engineers and under the general supervision of the Commission's Engineer-Manager. These records include all of the diversions from Bear River main stem and Smith's Fork, as they are required to administer the Bear River Compact. Daily discharge records for canals in the Upper and Central Divisions are published in this biennial report and have been published in previous biennial reports.

The Engineer-Manager determines when, under provisions of the Compact, a water emergency exists in the Upper or Central Divisions. Once a determination has been made of a water emergency, the Engineer-Manager is in weekly contact with state river

commissioners as to flows and diversions and, at least once a week, allocates the water within the Upper and Central Divisions as provided for under the Compact. The Engineer-Manager also inspects diversions in the field as needed to ensure the equitable apportionment of the water of the Bear River as provided for under the Compact.

Storage

New Storage

The original Compact defines storage rights in existing reservoirs above Bear Lake and provides for an additional storage allowance of 36,500 acre-feet annually. Idaho users on Thomas Fork are allotted 1,000 acre-feet of this amount, and the remainder is divided equally between Wyoming and Utah.

The reservoirs listed in Figure O.4 have been constructed under the additional storage provisions of the original Compact.

Constructed Additional Storage Provided for Under the Original Compact

<i>Reservoir</i>	<i>Allocation</i>
Sulphur Creek Reservoir (Wyoming)	4,614 ac-ft
Sulphur Creek Reservoir Enlargement (Wyoming)	1,100 ac-ft
J. L. Martin Reservoir, Sulphur Creek (Wyoming).....	88 ac-ft
A. J. Barker Reservoir, Yellow Creek (Utah)	162 ac-ft
Hatch Brothers Reservoir (Utah)	350 ac-ft
Woodruff Narrows Reservoir (Wyoming)	3,250 ac-ft
Woodruff Narrows Reservoir (Utah)	15,240 ac-ft
Whitney Reservoir (Wyoming).....	4,200 ac-ft
Wyman Reservoir (Wyoming).....	22 ac-ft
Massae Reservoir (Wyoming).....	107 ac-ft
Massae Reservoir Enlargement (Wyoming)	51 ac-ft
Woodruff Creek Reservoir (Utah)	2,000 ac-ft
Coy Reservoir (Wyoming).....	50 ac-ft
Bear River Regional Joint Powers Board (Wyoming)	168 ac-ft
TOTAL ALLOCATION.....	31,402 ac-ft

Figure O.4

Additional storage allowance is also granted under the Amended Compact. Woodruff Narrows was enlarged in 1980 under this provision from a capacity of 28,100 acre-feet to 57,300 acre-feet. Allocated to this enlargement is: Utah, 18,000 acre-feet, including 6,686 acre-feet depletion; and Wyoming, 2,960 acre-feet, including 871 acre-feet depletion.

Sulphur Creek Reservoir was enlarged in 1988 to a total capacity of 19,775 acre-feet. Allocated to this enlargement is 10,315 acre-feet (9,370 for municipal use), including 701 acre-feet for depletion.

Bear Lake

Article VI of the Compact provides an irrigation reserve level in Bear Lake below which water shall not be released solely for generation of power, except in emergency; but after release for irrigation, it may be used in generating power as it is conveyed to irrigation diversion works. The reserve is to be increased by designated amounts as additional storage, allocated by the original Compact, is developed above Bear Lake. No additional storage was built pursuant to this provision in the Compact during the biennial period, and so the irrigation reserve elevation remained at 5,914.61 feet, with an active storage content in Bear Lake of 794,000 acre-feet. This irrigation reserve elevation corresponds to 30,000 acre-feet of developed additional original Compact storage allocation.

Water Supply

The Commission uses three stream gages, one in each of the three river divisions, as general indicators of the water supply during a given year in the respective divisions. Each of these three gages has a period of record beginning in 1943 and continues to the present. There are not significant streamflow diversions above these three gages and, hence, they are used to approximate natural flow conditions.

In the Upper Division, most of the Bear River streamflow originates on the north slopes of the Uinta Mountains and flows northward across the state line into Wyoming. The USGS Utah-Wyoming State Line Gage has been used as a good indicator gage of the water supply generally available above Bear Lake and, in particular, to the Upper Division.

Inflow from the Smith's Fork to the Bear River in the Central Division often represents half, or more, of the combined flow of the Bear River at this location. Therefore, the USGS gage on Smith's Fork has been used by the Commission as an indicator of the available water supply in the Central Division.

A large amount of the available water supply in the Lower Division originates and is diverted in the Cache Valley. The major streams which are tributary to the Bear River in the Cache Valley originate in the mountains on the east side of the valley. One of these tributaries, the Logan River, has been used by the Commission as a good indicator gage of the water supply available for diversion in the Cache Valley and, in general, in the Lower Division. A canal diverts from the Logan River above the USGS gaging station. Hence, in order to gain a good record of approximate natural flow conditions, the canal diversion data are added to the USGS stream gage data to generate a combined Logan River flow value. It is this combined Logan River data which is used as an indicator of the general water supply in the Lower Division.

Streamflow Distribution

The administration of the distribution of the waters of the Bear River between the three Compact states and the various subdivisions of the river, as defined by the Compact (the river crosses state lines five times), is defined by the original Compact. When the flow of the river in the Upper and Central Divisions decreases to certain levels, the Engineer-

Manager is to declare a "water emergency" and supervise the allocation of water between the sections within the divisions of the river as directed by the Compact.

The Compact provides that in the Upper Division, which comprises all of the Basin from its headwaters down to and including Pixley Dam, there shall be two sections administered in Wyoming and two sections administered in Utah. The Compact provides that when the total natural flow diversion in the division, plus the flow passing Pixley Dam, is less than 1,250 cfs (divertible flow) a water emergency exists and such divertible flow is allocated to the sections as follows:

Upper Utah Section	0.6 percent
Upper Wyoming Section	49.3 percent
Lower Utah Section	40.5 percent
Lower Wyoming Section	9.6 percent

The Amended Compact further provides in Article IV.A.1.e. that:

If for any reason the aggregate of all diversions in a river section of the Upper Division does not equal the allocation of water thereto, the unused portion of such allocation shall be available for use in the other river sections in the Upper Division in the following order: (1) In the other river section of the same State in which the unused allocation occurs; and (2) in the river sections of the other State. No permanent right of use shall be established by the distribution of water pursuant to this paragraph e.

The Compact defines the Central Division as comprising that part of the Basin from Pixley Dam down to and including Stewart Dam (the point of diversion to Bear Lake). It includes one section in Wyoming and one in Idaho.

Divertible flow in the Central Division is the sum of diversions from Smith's Fork and designated tributaries, diversions from Bear River in the division, diversion to Bear Lake via the Rainbow Inlet Canal, and flow passing Stewart Dam. A water emergency shall exist when this divertible flow is less than 870 cfs, or when the flow of the Bear River entering Idaho (gaging station at Border) is less than 350 cfs. Wyoming diversions are limited to 43 percent of divertible flow during a water emergency.

Procedures for the Lower Division Water Delivery were adopted several years ago. No formal requests for the declaration of a water emergency in the Lower Division have ever been received by the Commission.

Stream Gaging Program

The Commission has concluded a record of the stream flows in the Bear River drainage is most important as this record is needed: 1) for the measurement and subsequent distribution of waters during the irrigation season in compliance with the Compact; 2) to verify the compliance of diversions with the Compact; 3) for the review of the Compact, as is required from time to time; and 4) for the three states to plan for water resource use and development. As an indication of the Commission's commitment to the stream-gaging program, the

Commission allocated in the biennium about half of its budget to the stream-gaging program. PacifiCorp, the individual states, and water user organizations maintain additional records of stream flows and canal diversions. A composite of all of the records is needed to accurately reflect the waters available for use in the Bear River drainage.

All of the stream gages supported by the Commission are operated and maintained by the U.S. Geological Survey (USGS). The USGS is well recognized as a leader in stream-gaging technologies, and their records are used as a standard for planning, water distribution and legal purposes. The cooperative agreement between the Bear River Commission and the USGS provides that both contribute to the funding of the program. The adequacy of the stream-gaging program is constantly reviewed by the Commission's TAC, by Commission members and by the USGS.

Lists of the individual gages supported during the biennium and the records of key gages during the biennium are made a part of this report, and respective detail is provided in the 2015 and 2016 chapters of this report. The locations of the gages that were in operation during the biennial period are shown on Figure O.5.

BIENNIUM STATE ADMINISTRATION

Article XI of the Amended Compact provides that applications for appropriation or change in water use within each state shall be in accordance with individual state law, except no such application shall be approved if the effect will deprive water users within another state or increase the depletion beyond that which is provided for under the Compact. This article further requires that state officials report, in a format and at intervals established by the Commission, the status of their respective allocations and uses. The Commission has determined the best format for reporting such changes in use is the Biennial Report. Details of state water-related activities are shown in the respective years' write-ups.

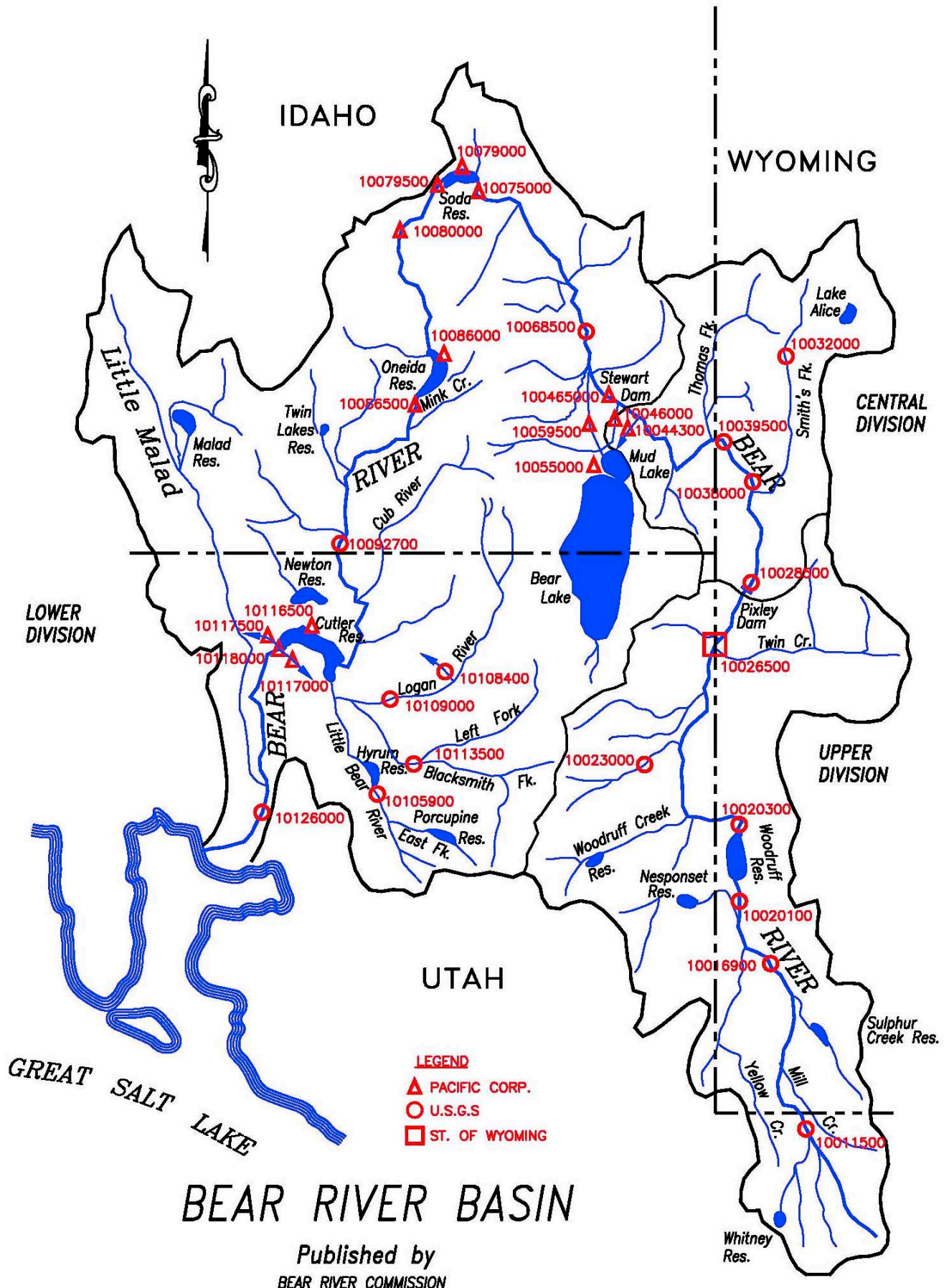


Figure O.5

WATER QUALITY EFFORTS

The water quality agencies within each of the three Bear River States supported the Commission creating the Water Quality Committee. It was determined that the three state lead water quality administrators would serve as committee members. The committee generally reports twice each year at the Commission meetings regarding its activities. At the time of the creation of the Water Quality Committee, the Bear River Water Quality Task Force was already in existence. Technical representatives from the three states' water quality agencies co-chair this task force which meets three times a year in the basin and which serves as a support to the committee in identifying, reviewing, coordinating and reporting water quality activities within the Bear River Basin. Though water quality administration is not a specific charge in the Compact, water quality issues certainly become entwined in water administration within the Basin. Not only has the committee worked effectively on some cross-discipline issues, but the cooperation fostered within the water quality administration arena has been most notable and worthwhile.

In order for water quality streamflow data to be meaningful, there is a need for streamflow information. The Commission financially supports the stream gaging program in cooperation with the USGS which collects basic hydrologic information in the Bear River drainage. The water quality agencies, through the Water Quality Committee, have agreed to financially support a portion of the overall stream gaging costs.

As reported in previous biennial reports, with the assistance of an EPA grant, a Bear River Water Information System (WIS) was created as a massive repository of hydrologic and water quality information. This valuable tool is housed at Utah State University (bearriverinfo.org). During the biennial period, the three states, through the Water Quality Committee, continued to financially and functionally support the maintenance of the WIS.

During the biennial period the three states continued their cooperative water quality monitoring effort, which included measuring water quality parameters at 21 stations four times during the year. During the biennial period, the Water Quality Committee continued to coordinate and report on TMDL efforts within the states. Many of the discussions of the committee focused on sediment load in the Bear River, including a TMDL in the Upper Bear River Basin in Wyoming, as well as sediment issues associated with, and potential studies, of the Mud Lake complex.

At each of the meetings the three states discussed their efforts with respect to water quality administration in the river. This is most valuable as the Bear River winds its way from the headwaters to its terminus in the Great Salt Lake by crossing state lines five times, creating six separate sections of the river in the three states. Continued discussions concerning each state's water quality standards and their TMDL efforts have been most productive, and discussions at the Water Quality Committee meetings and Bear River Water Quality Task Force meetings have helped inform administrators and coordinate efforts.

2015 WATER SUPPLY AND DISTRIBUTION REPORT

2015 Water Supply and Distribution Report

OVERVIEW

The 2015 water year was below normal and notably less than the prior year. Stream flow went from near normal in 2014 to below normal in 2015. The meaningful carry-over in storage coming from reduced usage in 2014 was helpful in this below normal year. Late May and early June rains helped alleviate the below normal streamflows in 2015. A water emergency, as defined by the Compact, was in place during much of the irrigation season in the Central Division. There was not a request for interstate regulation in the other two Bear River divisions.

WATER SUPPLY

Three stream gages, one in each division of the river, have been used by the Commission as indicator gages of the relative supply available for each of the divisions of the river (see Stream Gaging Program section in the Overview chapter). The Utah-Wyoming State Line and Smith's Fork gages measure a major portion of the stream flow in the Upper and Central Divisions, respectively. The Logan River is a major tributary to the Bear River in Cache Valley, which is in the Lower Division. Specific discharges, as measured by the USGS for the three gages during 2015, compared with the long-term averages, are summarized in Figure 2015.1 and are graphically illustrated in Figures 2015.2 through 2015.4 on the subsequent pages.

Figure 2015.1 illustrates a summary of the volumetric discharge for each of these gages for the water year. As the water supply available during the irrigation season is most critical for filling the natural flow rights, the discharge as measured at these gages during the irrigation season is also illustrated in Figure 2015.1.

Figures 2015.2 through 2015.4 show hydrographs for each of these three gaging stations. On each hydrograph, the mean daily flow during the irrigation season is plotted against the average of the mean daily flows for the period 1943 through 2015. The area between the 2015 hydrographs and the mean hydrographs represents the difference in volume of water discharged during 2015 versus the long-term average. This volumetric difference is illustrated by the bar charts shown on each of the figures.

As can be seen in Figure 2015.1, the annual discharge for the Upper Division (Utah-Wyoming State Line gage) was 81 percent of the long-term average, and streamflow on

2015 Water Supply Summary by Division

2015 WATER YEAR

(Discharge in Acre-feet)

GAGE	AVERAGE (1943-15)	2015	PERCENT
Upper Division (UT-WY State Line)	138,800	111,900	81%
Central Division (Smith's Fork)	136,400	136,400	100%
Lower Division (Logan River)	180,600	127,300	70%

2015 IRRIGATION SEASON

MAY - SEPTEMBER

(Discharge in Acre-feet)

GAGE	AVERAGE (1943-15)	2015	PERCENT
Upper Division (UT-WY State Line)	114,500	76,500	67%
Central Division (Smith's Fork)	101,600	91,800	90%
Lower Division (Logan River)	120,900	79,200	66%

Figure 2015.1

Smith's Fork and the Logan River were 100 and 70 percent, respectively. More important to the natural flow diversions than the streamflow during the water year is the streamflow during the irrigation season of May through September. During this period, the water supply was 67 percent (Upper Division), 90 percent (Central Division), and 66 percent (Lower Division). One item of interest to note is that the actual streamflows realized during the irrigation season shown above were close (within $\pm 10\%$) to the April 1 forecasted amounts in all three Divisions.

A closer look at the three hydrographs (Figures 2015.2, 2015.3 and 2015.4) is also insightful when one is trying to understand the natural water supply in the spring and summer of 2015. The Upper Division gage (Figure 2015.2) indicates runoff was pretty much below normal during the entire irrigation season except for two short peak runoff periods when it approached normal flows for a few days. The Central Division gage (Figure 2015.3) shows runoff, though below normal, much closer to both normal flows and a normal pattern during most of the irrigation season. The Lower Division indicator gage (Figure 2015.4) shows a normal runoff pattern but significantly below normal flows throughout the irrigation season. In summary, during the 2015 irrigation season the streamflow was notably below normal in the Upper and Lower Divisions with nearer to normal water supply in the Central Division. It should be noted that, though not necessarily shown on the streamflow hydrographs, meaningful rains in the basin in late May and early June did much to meet irrigation demands, thereby offsetting the below normal flows.

2015 - Upper Division Water Supply

Flow at Utah-Wyoming State Line Gage

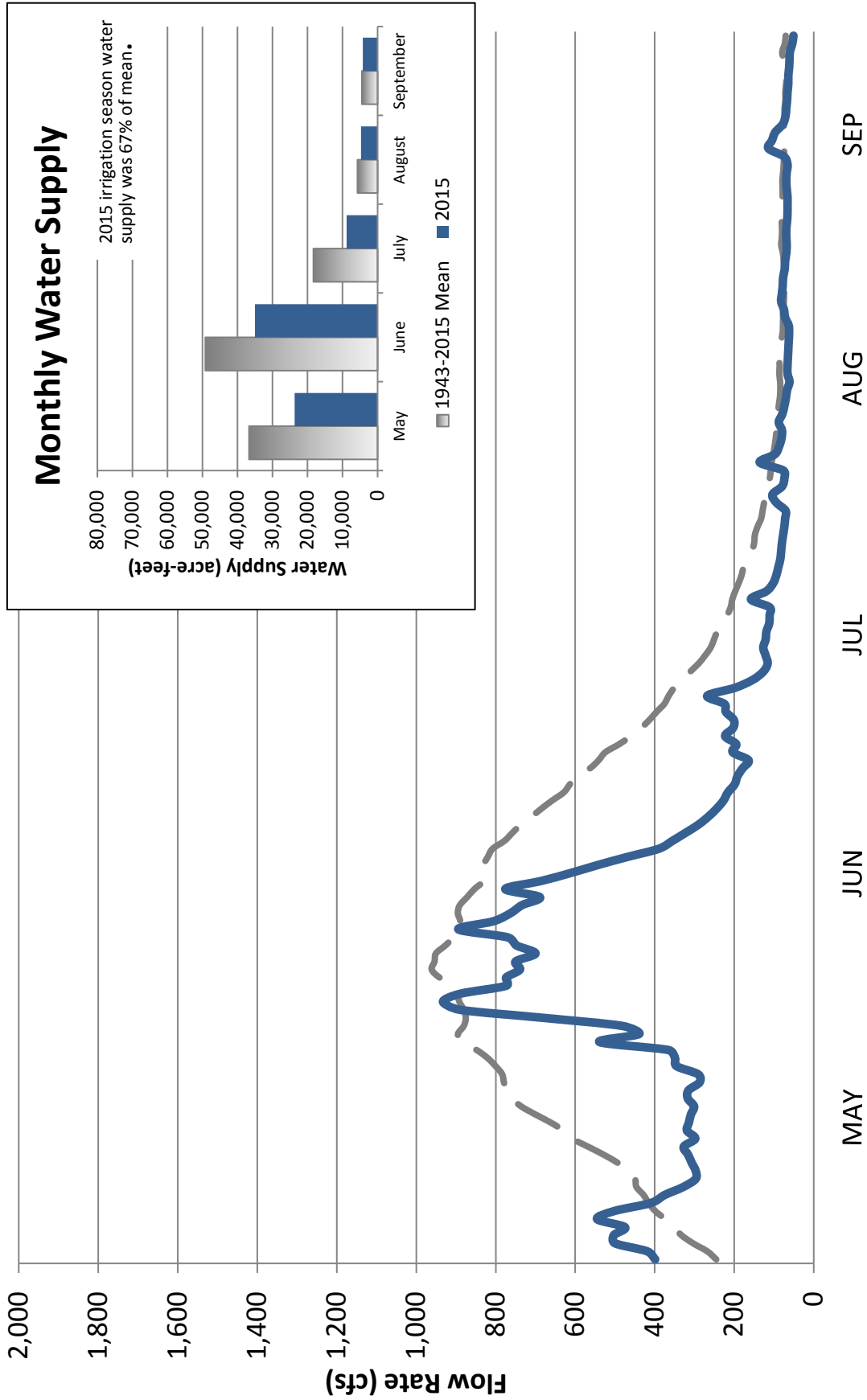


Figure 2015.2

2015 - Central Division Water Supply

Flow at Smiths Fork near Border, Wyoming Gage

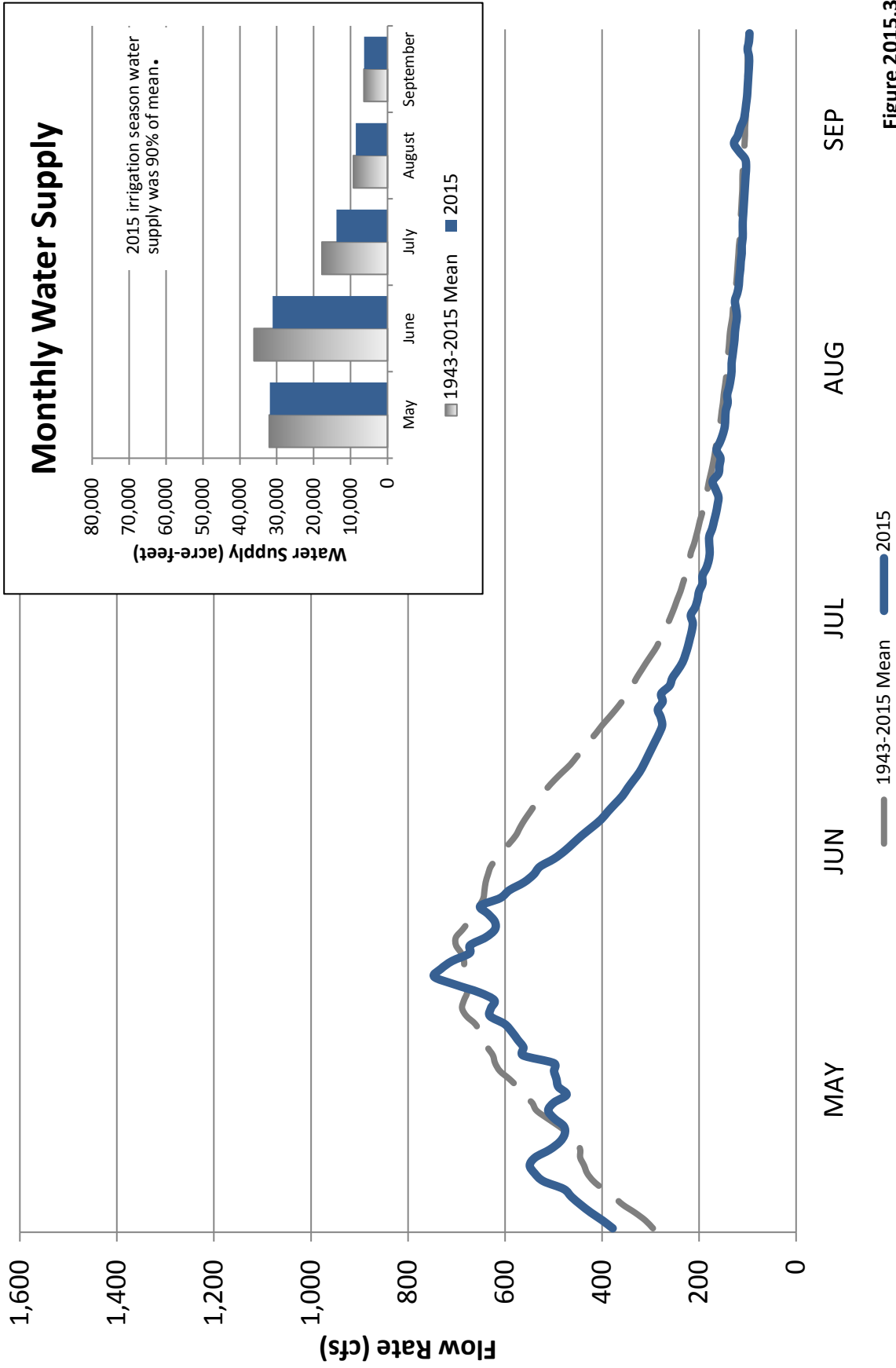


Figure 2015.3

2015 - Lower Division Water Supply Flow at Logan River Combined Gage

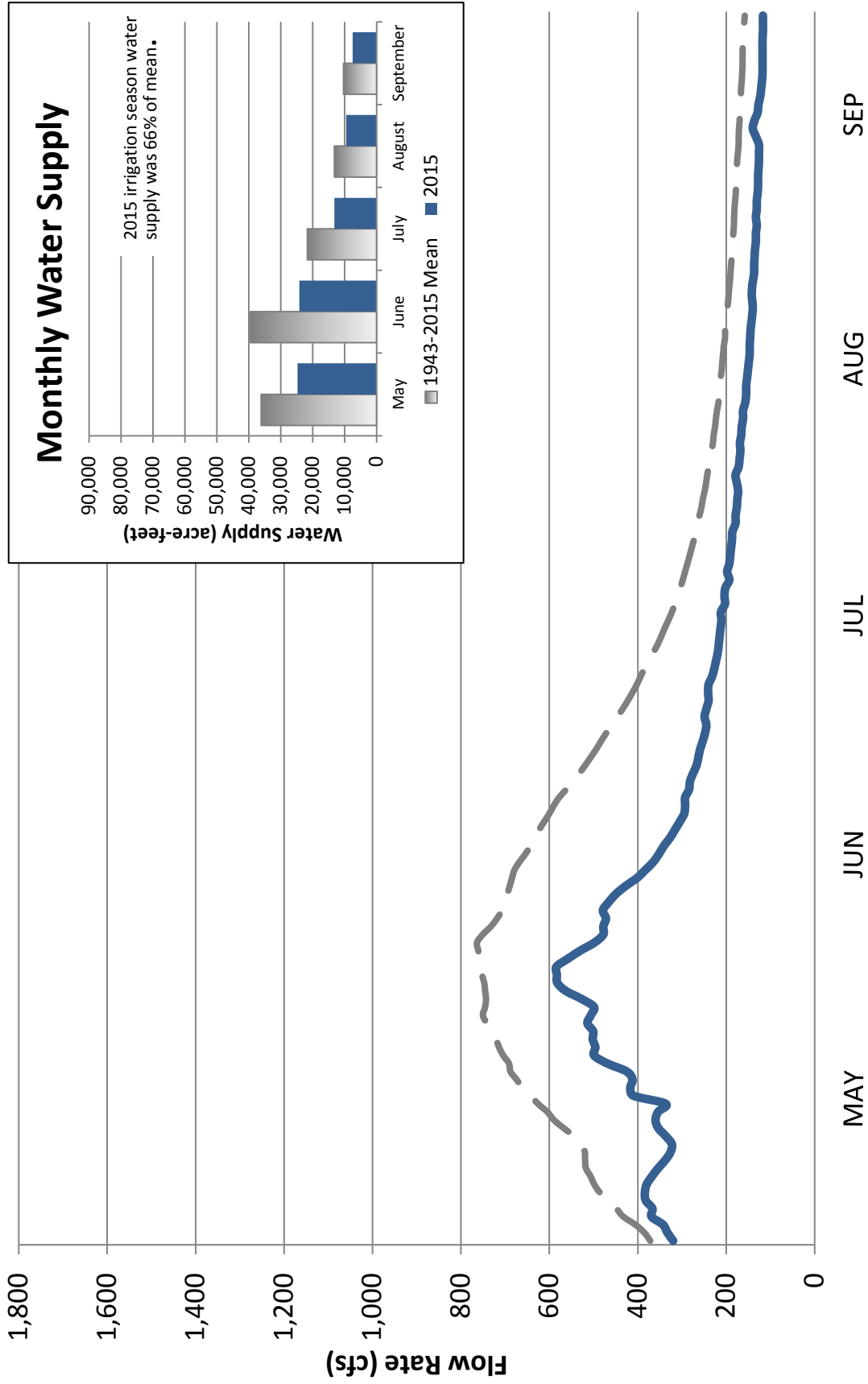


Figure 2015.4

STORAGE

Storage supplies along the Bear River have a notable impact on the water resources available for irrigation each year. Despite the meaningful rains late in the irrigation season in 2014 which reduced storage demand, because of the low stream flows in 2014 and the two prior water years, storage supplies in 2015 started below average carryover storage. Woodruff Narrows Reservoir is the largest reservoir in the Upper Division. However, Whitney, Sulphur Creek, and Woodruff Creek Reservoirs also provide for notable amounts of winter storage.

Paragraph B of Article VI of the Amended Compact, which allows for additional storage rights above Stewart Dam, also has a provision which restricts storage to occur if the water surface elevation at Bear Lake is below an elevation of 5911.0 (UP&L Datum). About half of the storage which is assigned to Woodruff Narrows Reservoir, from both the States of Utah and Wyoming, falls under this provision of the Amended Compact. Though Bear Lake had dropped significantly from its high level in 2011, it was still a little above 5911 and so this storage restriction did not apply during the 2015 storage season.

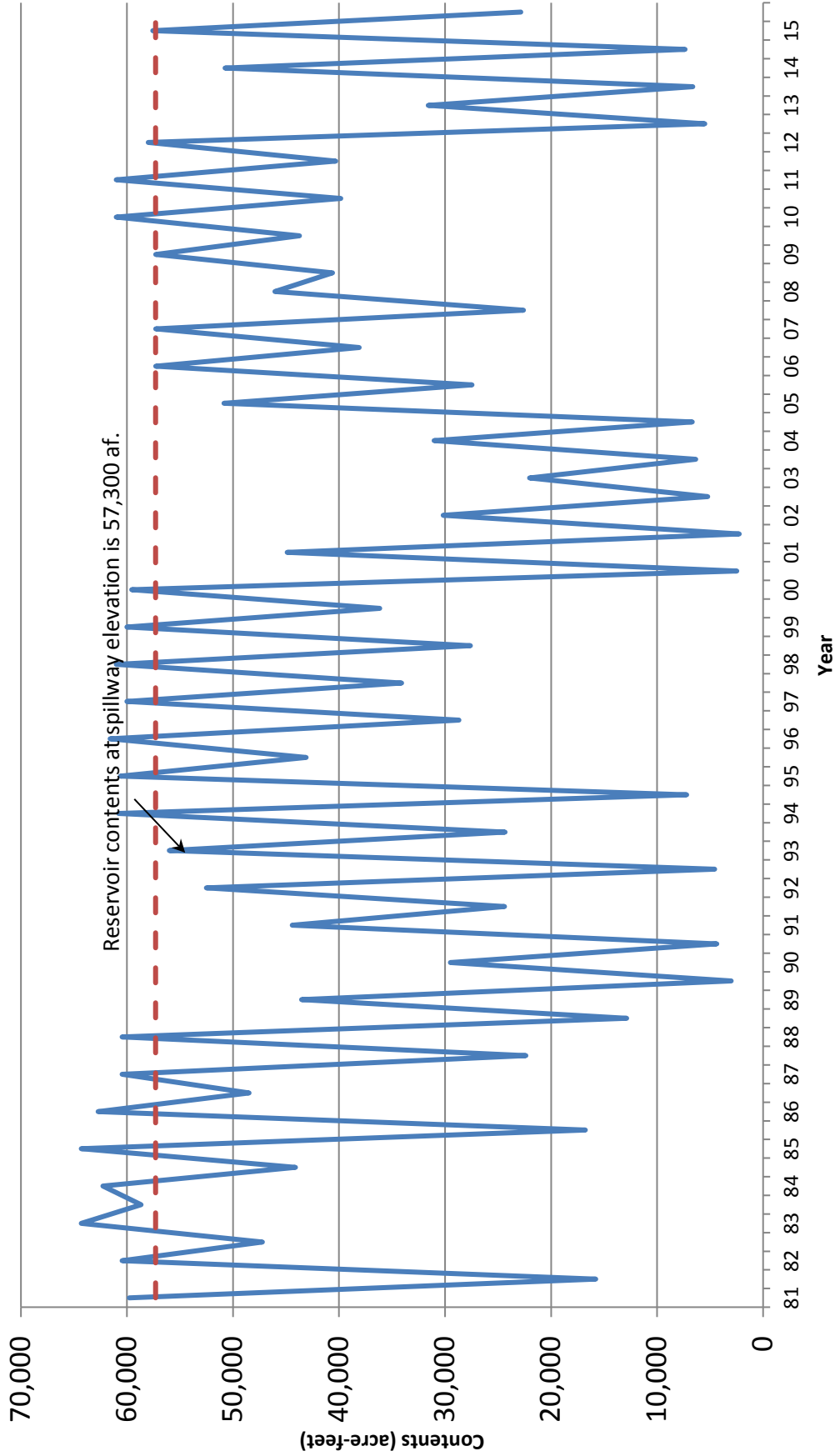
Prior to 1997 a gage was maintained, with Commission funding, by the USGS on Woodruff Narrows Reservoir. The gage included a recorder which allowed for preservation of daily values. Since this time, periodic measurements have been kept by the Woodruff Narrows Reservoir Company in coordination with the Wyoming State Engineer's Office. In 2013 a real-time water level gage was installed at Woodruff Narrows Reservoir. Figure 2015.5 shows the maximum and minimum contents for the Woodruff Narrows Reservoir since its enlargement in 1980.

The spillway crest of Woodruff Narrows Dam is at an elevation of 6454.5 feet and when the water level is at this elevation, the content is 57,300 acre-feet. Hence, when the reservoir is spilling, the contents above this amount represent uncontrolled storage as this storage is only temporary and cannot be controlled by the reservoir company. Generally, during spill periods, the reservoir company is often releasing significant flows through its outlet works as well. Though the total contents are uncontrolled, the proportion of water discharging from the reservoir through the outlet works versus over the spillway is somewhat under the control of the reservoir company. Both discharge to the Bear River below the dam but above the stream gage, and it makes no difference to the total discharge measured into the Bear River. Because of the very dry prior three water years, Woodruff Narrows carried over only approximately 7,400 acre-feet into the 2015 storage season. With below normal streamflow in 2015 the reservoir filled and spilled in 2015 reaching a high content of 57,556 acre-feet on May 15 before being drafted for summer irrigation uses. It ended the season with a meaningful carryover storage amount of 22,860.

There is no significant storage in the Central Division.

The largest and most significant storage reservoir in the Lower Division, and in the entire watershed, is Bear Lake, which is at the very top of the Lower Division. Bear Lake is operated as a storage reservoir by PacifiCorp. The Compact regulates various aspects of how PacifiCorp can manage the storage of water within Bear Lake. Figure 2015.6 summarizes the 2015 Bear Lake hydrologic information and significant operational events.

Woodruff Narrows Reservoir Annual Maximum and Minimum Contents



Note: Through the 1996 water year a gage with a recorder was maintained by the USGS on Woodruff Narrows Reservoir. Since this time, values are based on spot observations and estimates by the Woodruff Narrows Reservoir Company and the Wyoming State Engineer's Office. Contents above 57,300 af represent uncontrolled storage.

Figure 2015.5

**Summary of Significant
2015 Bear Lake
Hydrologic Information and Operational Events**

<u>Date</u>	<u>Hydrologic Information/Event</u>	<u>Contents (% of Full) Discharge (% of Normal)</u>
10-01-14	Bear Lake Beginning Elevation — 5912.32 ft	642,778 af (45%)
09-27-14	Bear Lake Low Elevation ¹ — 5912.10 ft	628,365 af (44%)
	Rainbow Inlet Canal Discharge	164,000 af (62%)
	Bear River Discharge Below Stewart Dam	1,849 af
	Bear Lake Net Runoff (Computed Total Inflow less lake Evaporation)	137,000 af (42%)
06-23-15	Bear Lake High Elevation — 5914.44 ft	783,421 af (55%)
	Outlet Canal Releases: 5/1/15–5/8/15; 6/13/15-9/18/15; 9/26/15-9/30/15	185,000 af
07-01-15	Outlet Canal Maximum Release – 1,600 cfs	
	Bear Lake Storage Release ²	117,000 af
09-30-15	Bear Lake Ending Elevation — 5911.55 ft	592,476 af (42%)
	Bear Lake Settlement Agreement “System Loss” Volume ³	22,100 af

¹ Low contents prior to start of storage (occurred in previous water year).

² Net irrigation storage release from Bear Lake, subtracting Rainbow inflow and the decreed adjustment for the natural yield of the Bear Lake and Mud Lake area. **Includes system loss volume.**

³ Due to uncontrolled flow from (welcome) rain events. Whenever water flows below Cutler Dam during the irrigation season, any storage water in the system at Cutler is the first water out. Natural flow goes to irrigators.

Figure 2015.6

Figure 2015.6 provides much information as to the water stored in Bear Lake in 2015. Some of this information will be discussed in the Lower Division section of this report. Because of the extremely high flows into the lake in 2011, despite a successive drier than normal period, Bear Lake began the storage season with a carry-over storage of a little under 50% even though it was heavily drafted during the 2012 and 2013 irrigation seasons. PacifiCorp operated Bear Lake in storage mode throughout 2015.

Figure 2015.7 is a graph which shows the annual maximum and minimum elevations of Bear Lake since 1915. As described above, the beginning storage elevation (or prior year minimum) actually occurred on September 27, 2014, before the beginning of the new water year. One can see from Figure 2015.7 that storage in the lake increased the elevation by 2.3 feet during the storage season. Storage usage was relatively light, leading to a drop in elevation of just under three feet, with it ending the year about half a foot below where it started the year. Figure 2015.8 is an area plot showing the daily contents in Bear Lake over the past ten years. This hydrograph and Figure 2015.7 show that the very significant drop in Bear Lake water levels in the early 2000s was followed by a relatively stable, but low water period, which was followed by historic gains in lake elevation in 2011 and then a significant drop in 2012 and 2013, almost no change in 2014, and a small drop in 2015.

Bear Lake has such a large storage capacity compared to average annual use that it greatly buffers the potential shortages in the Lower Division over a period of below-normal years, but for the same reason, recovery from a depleted reservoir can be slow.

BEAR LAKE ELEVATION

Annual Maximum & Minimum Elevations

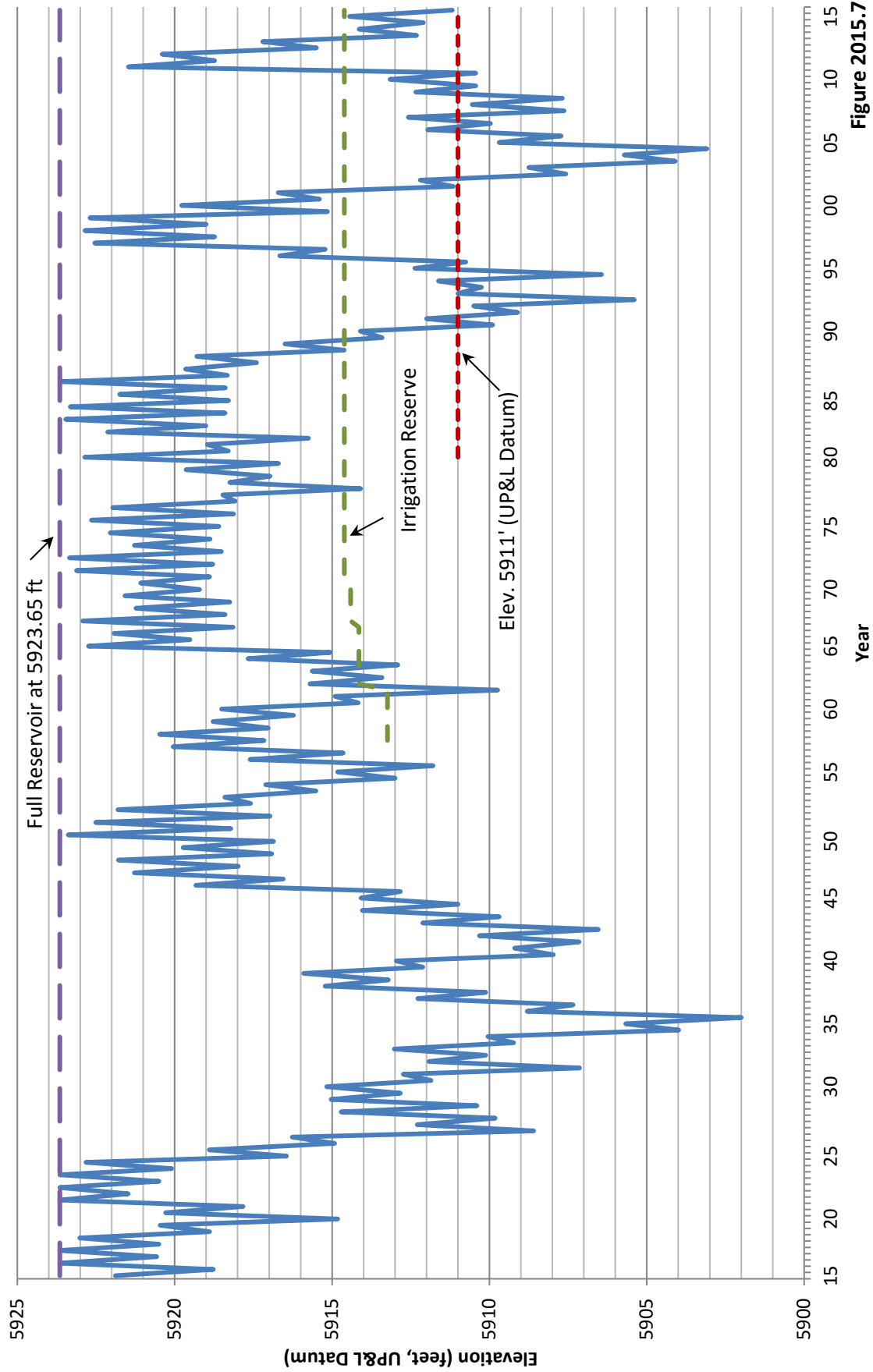


Figure 2015.7

BEAR LAKE CONTENTS Water Years 2006 - 2015

Bear Lake's maximum active storage contents is 1,421,000 af at an elevation of 5923.65'.

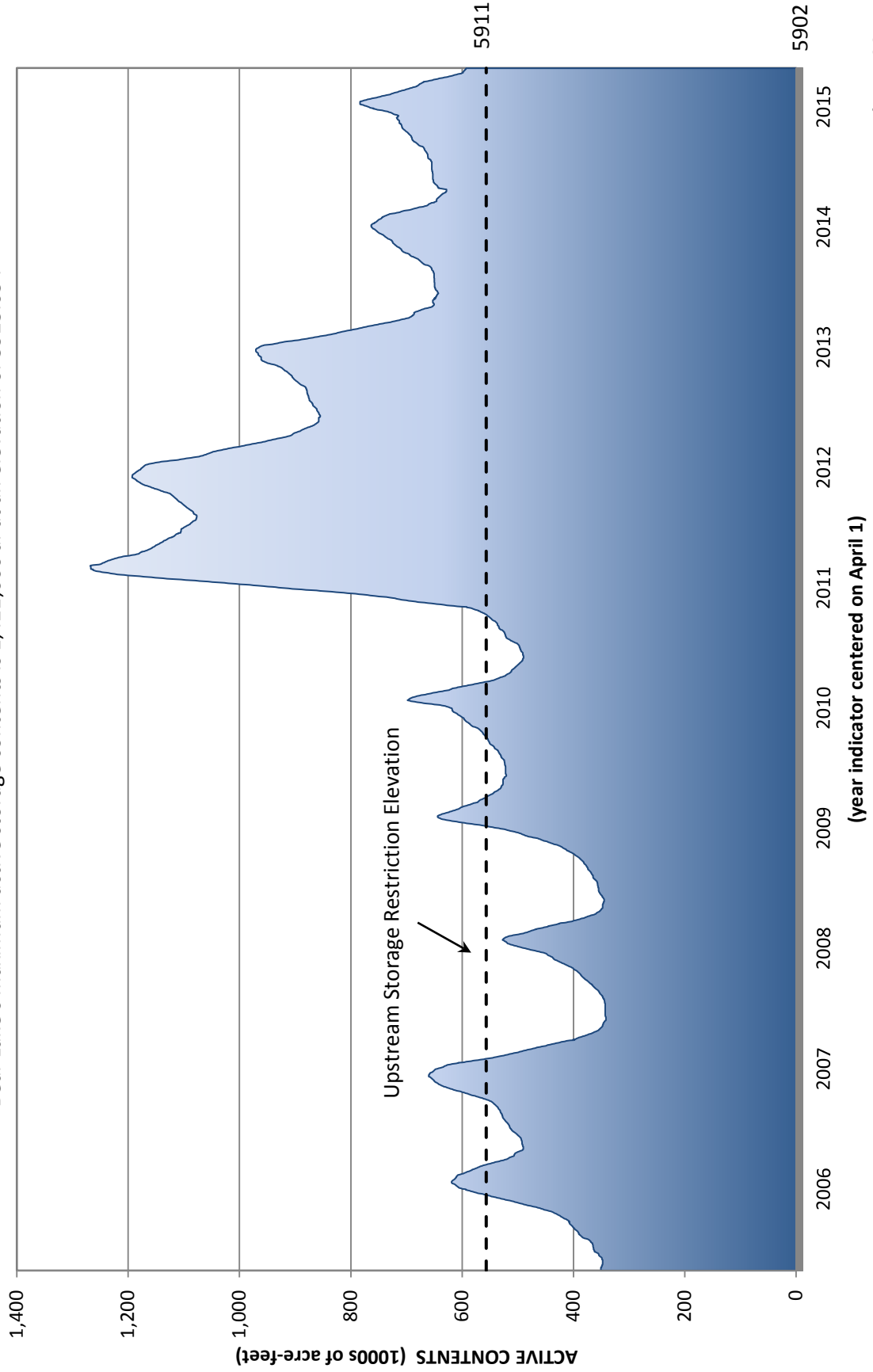


Figure 2015.8

STREAMFLOW DISTRIBUTION

General

The water administration in 2015 in the three divisions remained similar to prior years. There were no changes to the River Commissioners/ Watermasters in each of the sections from the previous year. Don Barnett continued to serve as Engineer-Manager of the Bear River Commission. Each River Commissioner/ Watermaster works under the direction of the respective State Engineers' offices, but coordinates with the Commission's Engineer-Manager with regard to total diversions in each of the various sections as defined by the Compact.

During the 2015 irrigation season, the following River Commissioners/Watermasters measured water in their sections of the river:

<u>DIVISION</u>	<u>SECTION</u>	<u>RIVER COMMISSIONER/ WATERMASTER</u>
Upper	Upper Utah	Travis McInnis
	Upper Wyoming	Travis McInnis
	Lower Utah	Ron Hoffman
	Lower Wyoming	Mike Johnson
Central	Wyoming	Mike Johnson
	Idaho	Josh Hanks
Lower	Idaho	Josh Hanks
	Utah	Jim Watterson

Snow survey information early in 2015 pointed to a close-to-normal to somewhat below normal water year. This turned out to be the case from a streamflow standpoint. A water emergency was declared in the Central Division and administration occurred pursuant to the Compact.

Upper Division

The Upper Division divertible flow, as defined by the Compact, consists of a summation of the diversions of all of the canals in the four sections, plus waters bypassing Pixley Dam, less that portion of water diverted by the canals which is attributable to storage releases from Whitney, Sulphur Creek, Woodruff Narrows and Grassy Lake Reservoirs. The Compact provides that when the total divertible flow is less than 1250 cfs, a water emergency exists. Though the stream flow in the Upper Division during the irrigation season was below this threshold, rains in late May and early June improved irrigation supply. In recent years, users in the Upper Division have at times opted for the flexibility available through unofficial general cooperation and sharing of water rather than direct Compact administration. With

these factors, there was not a request for Compact administration in the Upper Division in 2015.

During years when a water emergency has been declared, the regulation of the river is based on the weekly diversions as called in by the respective River Commissioners. At the end of each year, these River Commissioners submit to their respective State Engineers a complete written report of water deliveries. It is this information which is presented in the graphs and tables on the following pages and not the weekly totals called in during times of regulation. The weekly call-in totals, which are received during the irrigation season, differ slightly from the year-end data because of timing of call-ins and call-outs, shifts on canal ratings and other factors.

Figures 2015.9 and 2015.10 show the divertible flow and natural flow diversions in the Upper Wyoming and Lower Utah Sections, respectively. Also shown on the graphs (magenta line) is what would have been the Compact allocation had a water emergency been imposed. As can be seen in Figure 2015.10, during much of the irrigation season diversion in the Lower Utah Section was below the allocation. However, this is due to the fact that the water was getting past the Lower Utah Section to the Lower Wyoming Section and not due to over diversion in the Upper Wyoming Section as is confirmed by Figure 2015.9. Figure 2015.11 is a tabulation by month of canal diversions and shows the calculation of divertible flow (less storage release) and allocations to the respective sections, pursuant to the Compact, had a water emergency been declared. The values shown for each canal and pump in this figure represent total diversion (including both natural flow and storage), and then the storage water is subtracted out of the section totals before computing the total divertible flow.

2015 - Upper Division

Upper Wyoming Section Diversions vs Allocation

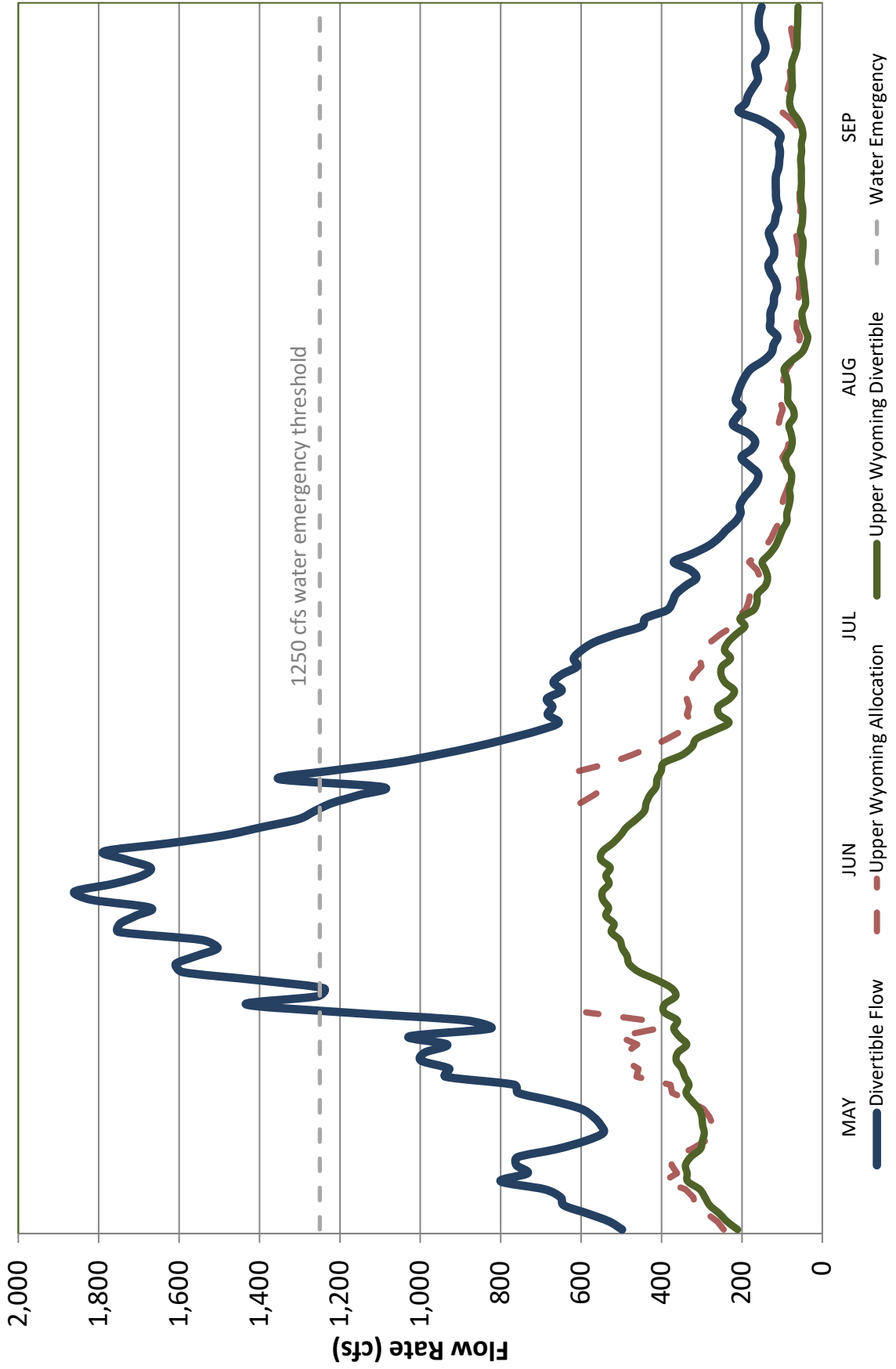


Figure 2015.9

2015 - Upper Division

Lower Utah Section Diversions vs Allocation

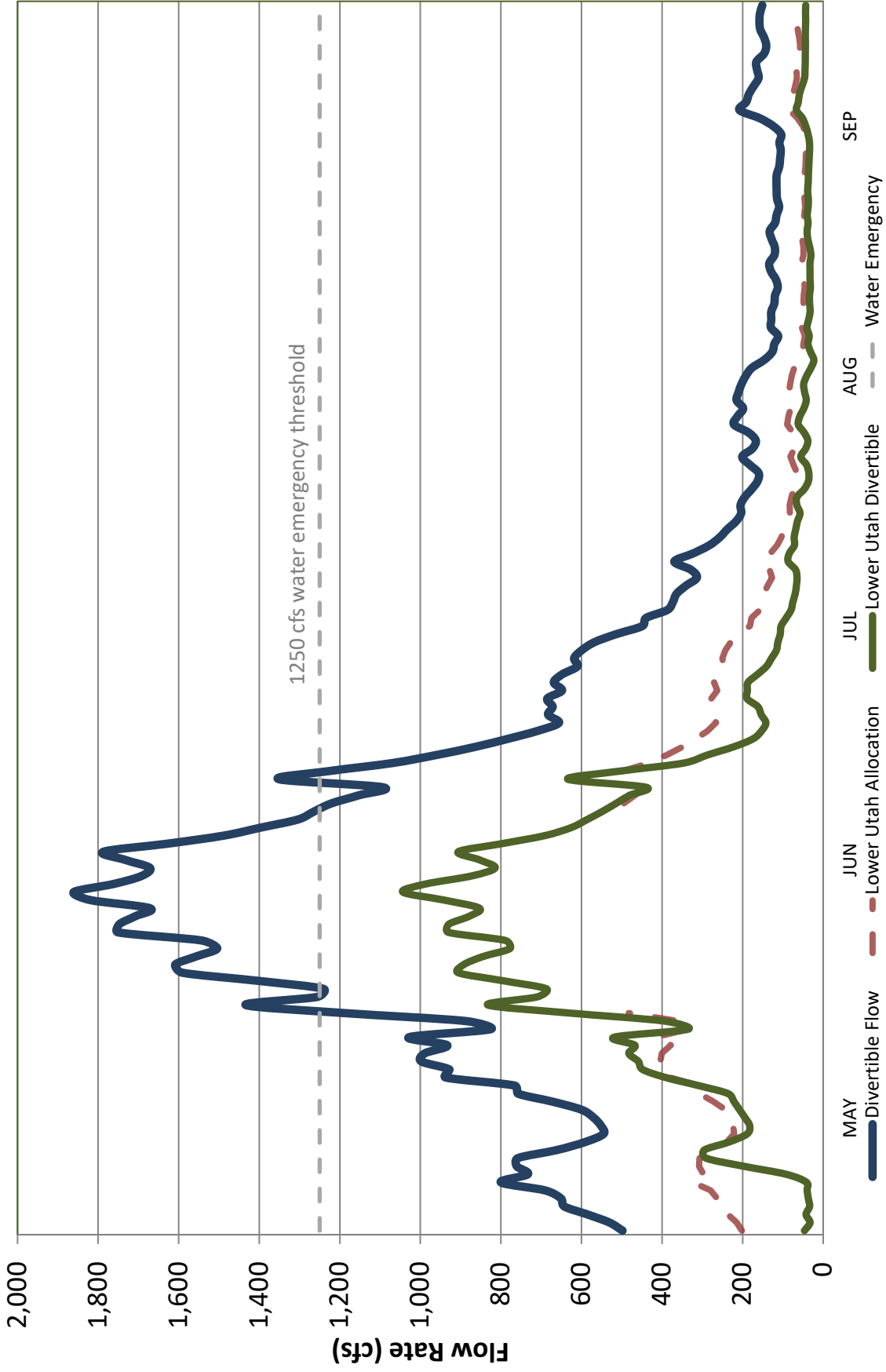


Figure 2015.10

	May																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
UPPER UTAH SECTION																															
Hovarka (E Fk)	0	0	0	0	0	2	4	4	4	4	4	4	4	4	4	4	4	4	4	5	6	6	6	6	6	6	6	6	7	7	7
Hatch (W Fk)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	5	5	5	5	5	5	5	5
UPPER WYOMING SECTION																															
Hilliard East Fork (E Fk)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lannon & Lone Mtn	11	13	13	14	16	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13	14	14	14	14	14	
Hilliard West Side	2	12	23	28	30	33	30	24	21	17	13	12	13	15	16	13	14	15	14	14	15	15	13	12	17	18	19	29	24	27	
Bear (Bear R)	15	22	21	28	31	24	34	50	54	54	59	67	66	67	66	67	67	66	67	67	57	48	47	47	47	48	48	48	47	42	
Tropic	2	4	3	2	2	2	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	3	3		
Kreider Domestic Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Danielson	2	2	2	3	3	3	3	3	3	2	2	2	2	3	3	3	3	3	3	3	4	5	5	4	5	5	5	5	4	4	
Crown & Pine Grove	12	13	16	16	16	13	10	10	10	9	9	9	9	8	8	8	8	8	8	9	10	12	11	11	10	11	11	12	10	6	
McGraw	8	8	9	8	8	9	8	8	8	7	7	7	7	9	9	8	9	9	9	9	11	15	15	14	13	15	15	17	13	8	
Lewis (D4)	3	3	2	2	2	2	2	2	4	3	3	2	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	
Homer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lewis and Blanchard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	4	4	
Myers No. 2	0	0	1	1	1	3	4	4	3	3	1	1	1	1	1	1	1	1	1	3	3	4	4	4	4	5	6	8	8	7	
Hare	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	
Coffman	2	2	2	2	2	2	2	2	1	1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	1	1	2	1	2	2	
Knober	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	
Myers No. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Myers Irr	1	1	1	2	4	4	4	4	4	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
Evanston Pipeline	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
Booth	11	12	13	12	11	13	14	13	13	13	12	12	12	12	12	12	12	12	12	12	12	12	12	10	11	12	11	8	10	9	
Anel Irr	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	3	5	5	5	5	5	4	5	5	5	5	5	5	
Cornelison	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	
Ev Water Supply (and Anderson)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Knight No. 2 (and No. 1)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	
"State Hospital Ditch"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Evanston Water	0	0	0	0	0	2	4	5	5	8	10	9	10	10	13	10	9	9	10	10	9	9	10	10	9	9	12	16	15	14	11
Wilson Irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
Faulkner	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Rocky Mtn & Blyth (and Crompton)	1	1	1	5	4	4	4	3	3	3	4	3	3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
B.E.A.R. Project PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fife Irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Johnston & Narramore	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Sim's Creek Slough Diversion	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	4	4	4	4	4	4	
John Sims	3	3	3	3	6	5	6	6	6	6	6	6	5	6	6	5	5	6	6	5	5	6	5	5	5	5	5	5	5	5	
Michael Sims	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
S. P.	1	0	0	0	2	4	4	4	4	4	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Almy	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Sims, Blight & Turner	1	1	1	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
Bowns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nixon West Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Turner	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Chapman (Headgate)	77	78	82	85	84	98	120	113	120	115	100	99	85	85	85	88	100	109	112	130	128	138	137	122	127	137	128	142	154	133	
Chapman (Stalene, incl'd above)	55	55	61	64	71	97	97	96	98	91	78	74	74	74	76	82	91	93	96	100	103	109	112	113	118	139	140	146	132	119	
Morris Bros Irr (Lower)	1	2	2	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	2	2	
Bowns & Bruce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	
Olson No. 1 Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tunnel	10	11	11	12	11	12	12	9	4	4	3	2	2	3	3	4	7	10	7	3	3	4	4	4	4	4	4	4	4	4	
Francis-Lee	10	10	10	10	10	10	11	11	11	10	10	10	10	10	10	10	10	10	11	11	11	10	10	10	10	10	21	24	25	25	
Bear River Canal	23	23	23	24	24	24	25	27	28	30	25	24	23	22	23	24	24	26	25	24	25	26	25	23	22	35	42	45	47	47	
TOTAL UPPER WY DIV.	211	237	256	280	292	305	335	336	340	328	307	301	295	298	303	309	327	341	334	344	351	366	361	340	359	397	397	433	434	407	417
Whitney Storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sulphur Creek Storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
LOWER UTAH																															
Neville	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4	3	3	3	3	2	3	5	5
Booth	0	0	0	0	0	0	0	3	10	15	16	15	13	11	10	10	10	11	14	17	16	10	10	10	12	14	14	13	13	13	
Rees Land & Livestock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Crawford-Thompson	3	4	5	5	6	7	10	53	150	159	125	121	131	143	140	134	146	158	137	128	139	143	146</								

2015

DAILY DISCHARGE IN CFS OF BEAR RIVER CANALS WITH COMPACT ALLOCATIONS IN THE UPPER DIVISION

June

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
UPPER UTAH SECTION																															
Hovarka (E Fk)	7	7	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	6	6	6	6	
Hatch (W Fk)	5	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
UPPER WYOMING SECTION																															
Hilliard East Fork (E Fk)	0	1	11	11	10	11	10	10	10	10	10	10	20	28	28	30	31	30	30	29	28	26	25	29	28	28	28	28	28	28	
Lannon & Lone Mtn	14	15	15	15	15	15	15	15	15	15	16	16	16	16	18	19	19	18	18	18	17	17	19	22	20	18	18	18	18		
Hilliard West Side	39	33	33	33	34	34	34	35	35	36	36	36	36	34	34	33	33	30	26	21	18	24	37	32	31	28	26	23	22		
Bear (Bear R)	37	38	64	74	74	75	76	75	78	67	54	52	57	71	69	68	67	67	72	83	81	78	75	80	77	70	65	65	67		
Tropic	3	4	4	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	2	2	2	2	2	4	4	4	3	3	3		
Kreider Domestic Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Danielson	6	6	5	5	5	5	6	6	7	12	14	13	12	11	11	10	9	8	8	7	7	7	7	6	5	5	5	5	4	4	
Crown & Pine Grove	6	5	5	4	8	7	7	10	14	14	17	14	12	13	15	14	13	12	12	13	15	18	18	20	23	27	27	24	21		
McGraw	10	9	9	9	9	8	9	8	10	15	17	16	16	15	15	14	14	13	12	12	13	15	11	10	9	9	9	7	7		
Lewis (D4)	1	1	1	2	2	3	3	2	1	2	2	3	2	2	1	3	1	1	1	2	2	2	1	0	1	3	4	4	3		
Homers	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1		
Lewis and Blanchard	4	4	5	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	4	1	1	1	1	1		
Myers No. 2	6	6	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	1	1	2	3	4	3	4		
Hare	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	7	7	7	7	7	7	7	4	4	4	4	4	4	0		
Koffman	2	2	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	1	2	2		
Knoder	0	1	0	0	0	0	1	1	1	1	1	1	1	1	1	2	3	3	3	3	3	3	2	3	3	3	3	3	3		
Myers No. 1	4	4	4	3	3	3	3	3	4	4	4	3	5	6	4	4	3	3	3	3	3	3	2	3	5	1	0	0	0		
Myers Irr	4	4	4	4	4	3	3	3	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	1		
Evanson Pipeline	8	8	8	8	8	8	8	8	8	8	8	8	8	8	12	12	12	12	12	12	12	12	12	12	12	12	12	14	14		
Booth	12	12	12	11	12	12	12	12	12	12	12	13	13	13	13	12	13	14	13	12	11	11	11	11	7	4	7	12	15	14	
Anel Irr	7	9	9	9	9	10	10	10	12	12	13	13	13	12	12	13	13	12	11	11	11	11	10	7	6	6	6	6	6		
Cornelison	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	2	2	2	2	2	2	3		
Ev Water Supply (and Anderson)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0		
Night No. 2 (and No. 1)	2	2	5	8	8	8	8	8	8	8	8	8	7	7	7	7	7	6	6	6	6	5	5	4	4	5	4	4	4		
State Hospital Ditch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Evanson Water	17	18	18	17	18	18	19	19	18	18	18	16	15	15	16	13	15	15	15	14	13	13	13	16	20	19	18	16	10		
Wilson Irr	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	2	2	2	2	2	2	2	2		
Faulkner	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Rocky Mtn & Blyth (and Crompton)	5	4	3	6	9	9	9	9	8	7	6	6	5	5	4	4	10	16	10	8	8	8	8	9	11	11	10	10	5		
B.E.A.R. Project PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Fife Irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Johnston & Narramore	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2		
Sim's Creek Slough Diversion	4	4	4	4	4	4	4	4	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11		
John Sims	7	11	16	16	17	17	18	17	17	17	18	17	16	15	15	14	13	12	11	10	9	9	7	6	5	5	5	4	4		
Michael Sims	0	3	3	3	3	3	3	3	4	4	4	4	4	4	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0		
S. P.	1	6	11	11	10	10	10	10	11	12	12	12	12	12	12	12	10	8	8	8	8	9	10	9	8	7	7	7	7		
Almy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	1		
Sims, Blight & Turner	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	4	4	4	4	4	4	3	3	3	3	3	3	3	3		
Bowns	0	0	0	0	0	0	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	3	3	3	3	3	3	3		
Nixon West Side	0	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2			
Turner	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2	2	2	2	2	2		
Chapman (Headgate)	149	156	148	138	136	142	158	149	145	140	152	151	137	127	119	131	133	114	99	90	86	81	75	71	66	62	58	57	50	44	
Chapman (Stateline, incl'd above)	123	123	119	112	101	103	106	102	88	85	90	104	102	88	91	103	84	67	55	40	33	30	35	34	31	26	14	16	16		
Morris Bros Irr (Lower)	2	2	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	3	1	1	0	1		
Bowns & Bruce	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0		
Olson No. 1 Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Tunnel	10	22	19	22	25	25	27	26	24	23	25	26	25	25	24	27	30	26	21	20	18	15	11	6	2	1	0	0	0		
Francis-Lee	24	24	24	24	24	25	24	24	24	24	24	29	37	36	36	35	35	35	34	34	34	34	34	33	21	11	11	10	10		
Bear River Canal	47	47	47	48	48	47	46	46	46	46	46	46	46	46	46	58	58	59	60	61	62	63	64	65	66	60	55	35	20	21	22
TOTAL UPPER WY DIV.	450	482	520	526	537	545	563	557	577	571	585	583	593	600	591	615	612	588	568	554	530	510	507	490	470	436	401	395	378	355	
Whitney Storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Sulphur Creek Storage	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	29	31	
LOWER UTAH																															
Neville	5	5	5	5	5	6	8	5	6	6	6	7	8	6	6	7	7	8	6	6	5	6	7	7	7	5	0	0	0	0	
Booth	13	13	14	14	14	14	13	13	13	13	13	14	16	16	16	17	17	18	17	17	17	17	17	17	18	11	1	1	1	1	
Rees Land & Livestock	0	0	0	23	18	16	15	15	15	14	14	14	16	19	19	18	18	17	16	16	15	15	14	13	12	6	2	2	2		
Crawford-Thompson	140	142	141	141	141	140	138	141	147	146	150	151	149	150	151	155	154	152	152	150	149	148	146	144	119	39	27	24	20		
Randolph-Woodruff	244																														

DAILY DISCHARGE IN CFS OF BEAR RIVER CANALS WITH COMPACT ALLOCATIONS IN THE UPPER DIVISION

	August																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
UPPER UTAH SECTION																															
Hovarka (E Fk)	1	1	1	1	1	1	1	1	1	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	1	1	1	1	1	1
Hatch (W Fk)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2
UPPER WYOMING SECTION																															
Hilliard East Fork (E Fk)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lannon & Lone Mtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hilliard West Side	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Bear (Bear R)	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	5	6	6	7	7	7	7	7	7	7	7	
Tropic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Kreider Domestic Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Danielson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Crown & Pine Grove	7	7	8	8	8	7	7	7	6	6	6	6	6	6	6	6	5	7	9	10	10	9	10	11	10	10	9	10	12	11	
McGraw	3	3	4	4	4	4	4	4	4	2	2	3	4	4	4	4	3	3	1	0	0	0	0	0	0	0	0	0	0	0	
Lewis (D4)	2	1	1	0	0	1	3	3	3	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	3	2	2	
Homer	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lewis and Blanchard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Myers No. 2	3	2	3	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hare	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Coffman	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Knober	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Myers No. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Myers Irr	3	3	3	4	4	3	3	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
Evanston Pipeline	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
Booth	6	6	6	6	7	9	7	8	7	6	6	6	6	6	6	6	6	5	6	8	7	7	7	6	8	8	10	9	9	9	
Anel Irr	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Cornelison	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	
Ev Water Supply (and Anderson)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Knight No. 2 (and No. 1)	2	2	2	3	3	3	2	3	3	3	3	3	3	3	3	3	2	0	1	1	0	0	0	0	0	0	0	0	0	0	
"State Hospital Ditch"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Evanston Water	4	4	3	8	11	11	11	11	12	11	11	12	12	11	11	11	11	10	10	11	11	10	10	10	10	9	9	10	10	10	
Wilson Irr	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Faulkner	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Rocky Mtn & Blyth (and Crompton)	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	
B.E.A.R. Project PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fife Irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Johnston & Narramore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sim's Creek Slough Diversion	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1	2	2	2	2	2	
John Sims	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	
Michael Sims	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
S. P.	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	3	3	2	3	3	3	3	4	5	5	5	5	5	
Almy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	
Sims, Blight & Turner	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bowns	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
Nixon West Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Turner	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Chapman (Headgate)	34	32	32	32	32	26	19	19	20	19	22	33	33	32	32	31	20	8	6	5	4	5	5	5	5	5	5	5	5	5	
Chapman (Stataline, incl'd above)	27	27	27	26	27	24	16	19	22	21	19	28	27	24	21	19	14	6	5	4	4	4	3	3	2	2	2	2	2	2	
Morris Bros Irr (Lower)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	0	0	0	0	0	0	0	0	0	0	
Bowns & Bruce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Olson No. 1 Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tunnel	7	5	4	9	12	10	10	11	13	12	11	11	11	11	10	9	4	1	1	0	2	3	4	3	3	3	3	3	3	3	
Francis-Lee	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	10	10	10	10	10	10	5	2	2	1	1	0	0	0	
Bear River Canal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	10	13	14	17	21	21	21	21	20	20	
TOTAL UPPER WY DIV.	110	105	105	116	119	110	105	108	113	108	112	125	125	125	125	130	112	93	87	88	94	98	100	98	100	104	103	109	111	109	107
Whitney Storage	2	2	2	2	2	5	8	8	8	8	8	8	8	8	5	5	5	15	19	25	25	25	25	25	25	26	26	29	29	29	
Sulphur Creek Storage	26	26	26	26	26	22	22	22	22	22	29	32	32	32	31	31	31	27	27	27	25	25	25	25	31	33	31	30	30	30	
LOWER UTAH																															
Neville	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Booth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rees Land & Livestock	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Crawford-Thompson	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	0	0	1	1	1	1	0	
Randolph-Woodruff	30	30	29	29	28	28	28	29	28	27	24	22	21	21	21	16	13	16	18	19	19	16	13	12	13	14	14	1			

DAILY DISCHARGE IN CFS OF BEAR RIVER CANALS WITH COMPACT ALLOCATIONS IN THE UPPER DIVISION

September

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total	
UPPER UTAH SECTION																																
Hovarka (E Fk)	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	588
Hatch (W Fk)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	381	
UPPER WYOMING SECTION																																
Hilliard East Fork (E Fk)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,050	
Lannon & Lone Mtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,121	
Hilliard West Side	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	2,190	
Bear (Bear R)	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	14	10	10	10	10	10	10	9	9	9	4,843		
Tropic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	225	
Kreider Domestic Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Danielson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	399	
Crown & Pine Grove	12	14	12	11	10	10	10	10	9	10	9	6	6	6	6	6	6	5	4	3	3	3	3	3	3	3	4	6	4	1,676		
McGraw	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	4	4	4	4	4	4	3	3	2	2	1	1	1	918	
Lewis (D4)	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	229	
Homer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	
Lewis and Blanchard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	272	
Myers No. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	349	
Hare	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	202	
Coffman	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	133	
Knoder	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	311	
Myers No. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Myers Irr	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	584	
Evanston Pipeline	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	1,270	
Booth	8	9	7	8	8	10	11	10	8	8	8	8	8	4	5	6	6	5	5	4	4	4	4	4	4	4	4	4	4	3	1,438	
Anel Irr	1	1	2	4	4	4	4	4	4	4	4	4	4	4	4	4	3	2	1	1	0	0	0	0	0	0	0	0	0	0	641	
Cornelison	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260	
Ev Water Supply (and Anderson)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92	
Knight No. 2 (and No. 1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	433	
"State Hospital Ditch"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Evanston Water	6	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	1,422	
Wilson Irr	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	196	
Faulkner	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	140	
Rocky Mtn & Blyth (and Crompton)	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	4	4	4	4	4	3	708		
B.E.A.R. Project PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	
File Irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Johnston & Narramore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	
Sim's Creek Slough Diversion	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	623	
John Sims	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	3	3	2	2	2	2	2	2	2	2	2	2	914	
Michael Sims	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	
S. P.	5	4	2	2	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	526	
Almy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	106	
Sims, Blight & Turner	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	243	
Bowns	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	165	
Nixon West Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	
Turner	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	173	
Chapman (Headgate)	5	6	9	8	7	8	9	9	7	7	6	6	6	6	12	29	37	37	36	35	36	35	30	25	25	24	23	21	22	9,745		
Chapman (Stalentine, incl'd above)	2	2	2	2	1	1	1	0	0	0	0	0	0	1	1	2	8	8	8	8	9	9	9	8	7	6	5	6	7	7,112		
Morris Bros Irr (Lower)	1	2	2	2	3	3	4	3	3	3	3	2	2	2	2	2	2	2	2	1	1	0	0	0	0	0	0	0	0	0	145	
Bowns & Bruce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108	
Olson No. 1 Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tunnel	3	3	3	3	3	3	3	3	3	3	2	2	3	3	3	4	4	4	3	3	3	3	3	3	3	3	2	2	1	1	1,015	
Francis-Lee	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,363	
Bear River Canal	20	20	19	19	19	19	19	19	19	19	20	20	20	21	9	1	1	0	0	0	0	0	0	1	1	1	1	0	0	0	2,977	
TOTAL UPPER WY DIV.	108	110	105	107	107	111	112	111	107	105	103	101	99	95	98	95	110	112	102	97	92	91	91	84	79	79	78	77	73	72	39,642	
Whitney Storage	30	30	29	29	29	29	29	29	29	29	29	25	25	25	25	17	17	13	13	5	5	5	5	5	5	5	5	5	5	1,557		
Sulphur Creek Storage	30	26	26	30	30	30	30	30	29	26	24	24	22	22	21	18	18	18	18	18	12	11	11	11	11	11	11	11	11	11	2,616	
LOWER UTAH																																
Neville	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	220	
Booth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	694	
Rees Land & Livestock	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	
Crawford-Thompson	1																															

Central Division

The Compact provides that a water emergency shall be deemed to exist when the divertible flow in the Central Division drops below 870 cfs. A water emergency shall also be deemed to exist in the Central Division if the flow rate at the Border Gage drops below 350 cfs. The Compact provides that once a water emergency is deemed to exist, the State of Wyoming is to be restricted to 43 percent of the total divertible flow. The remaining 57 percent is available for use within Idaho.

Figures 2015.12 and 2015.13 graphically illustrate the Central Division's divertible flow and the respective allocations and diversions by the Wyoming and Idaho Sections under a water emergency. The flow passing the Border Gage is not illustrated on these figures as it confuses the diversion and allocation data. It is important to note that on Figure 2015.13 the line labeled as "Available to Idaho" represents the summation of diversions within the State of Idaho, as well as flow passing Stewart Dam and diversion to the Rainbow Inlet Canal. As the Compact provides that 57 percent of the Central Division's divertible flow shall be available for use within Idaho, this line is used to show whether such provision of the Compact was met. However, the Compact also provides that if Idaho elects to not divert into its canals its full entitlement, a portion of its allocation can pass into the Lower Division via the Rainbow Inlet Canal or Stewart Dam. Data for this hydrograph are based on the River Commissioners'/ Watermasters' annual reports to their respective state water agencies.

Figure 2015.14 shows a compilation of daily canal diversions as provided by the respective River Commissioners/Watermasters. The Wyoming and Idaho Sections' diversions and allocations are tabulated and summarized at the bottom of each page. The pages are divided such that there is one month's data per page. As the flow of the Bear River at the Border Gage could also be critical to the declaration of a water emergency, as defined by the Compact, this gage's data are also shown in these tables.

As can be seen on the graphs and from the data, the water supply in the Central Division in 2015 was near normal to below normal during the irrigation season. Based on diversion and streamflow data, a water emergency pursuant to the Compact was declared on May 1. By mid-May, flows exceeded the 870 cfs threshold and the Central Division went out of interstate regulation. Snow melt runoff coupled with mid-May to mid-June rains held the flows up such that the Central Division did not go back into interstate regulation until about the first of July. It remained in interstate regulation thereafter until the end of the irrigation season. One will note from Figures 2015.12 and 2015.13 the river went back into interstate regulation Wyoming diverted less and, hence, Idaho received more, than their respective allocations. This is principally due to the fact that the rains provided meaning full supply to the fields and so the users did not desire their full allocation and then sought to dry out their fields for haying. Further, significant gains in the Idaho Section held the water supply up in this reach. There was very good cooperation between the Wyoming and Idaho Watermasters, throughout this irrigation season.

2015 - Central Division Distribution

Wyoming Section Diversions vs Allocation

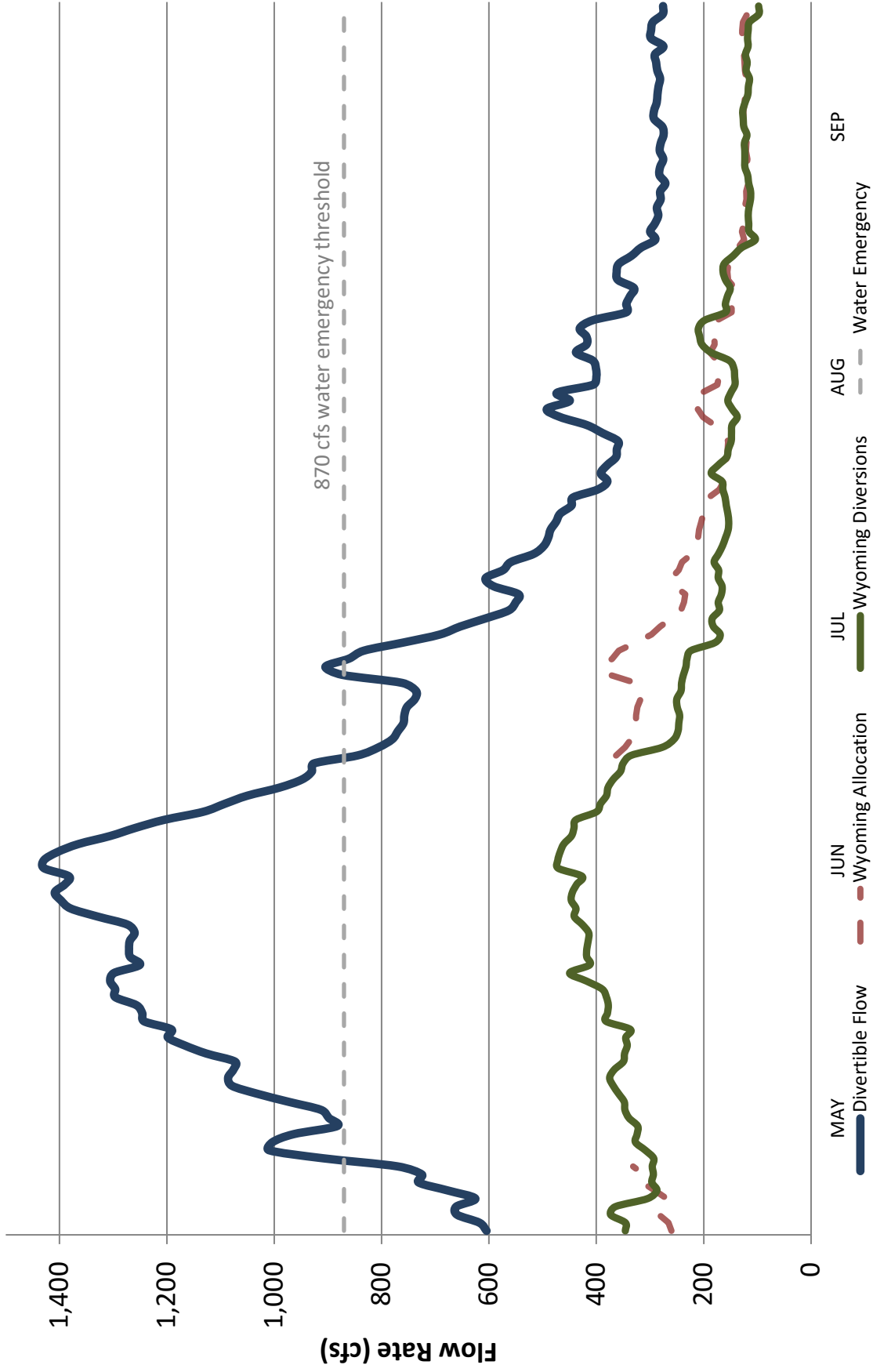


Figure 2015.12

2015 - Central Division Distribution

Idaho Section Diversions vs Allocation

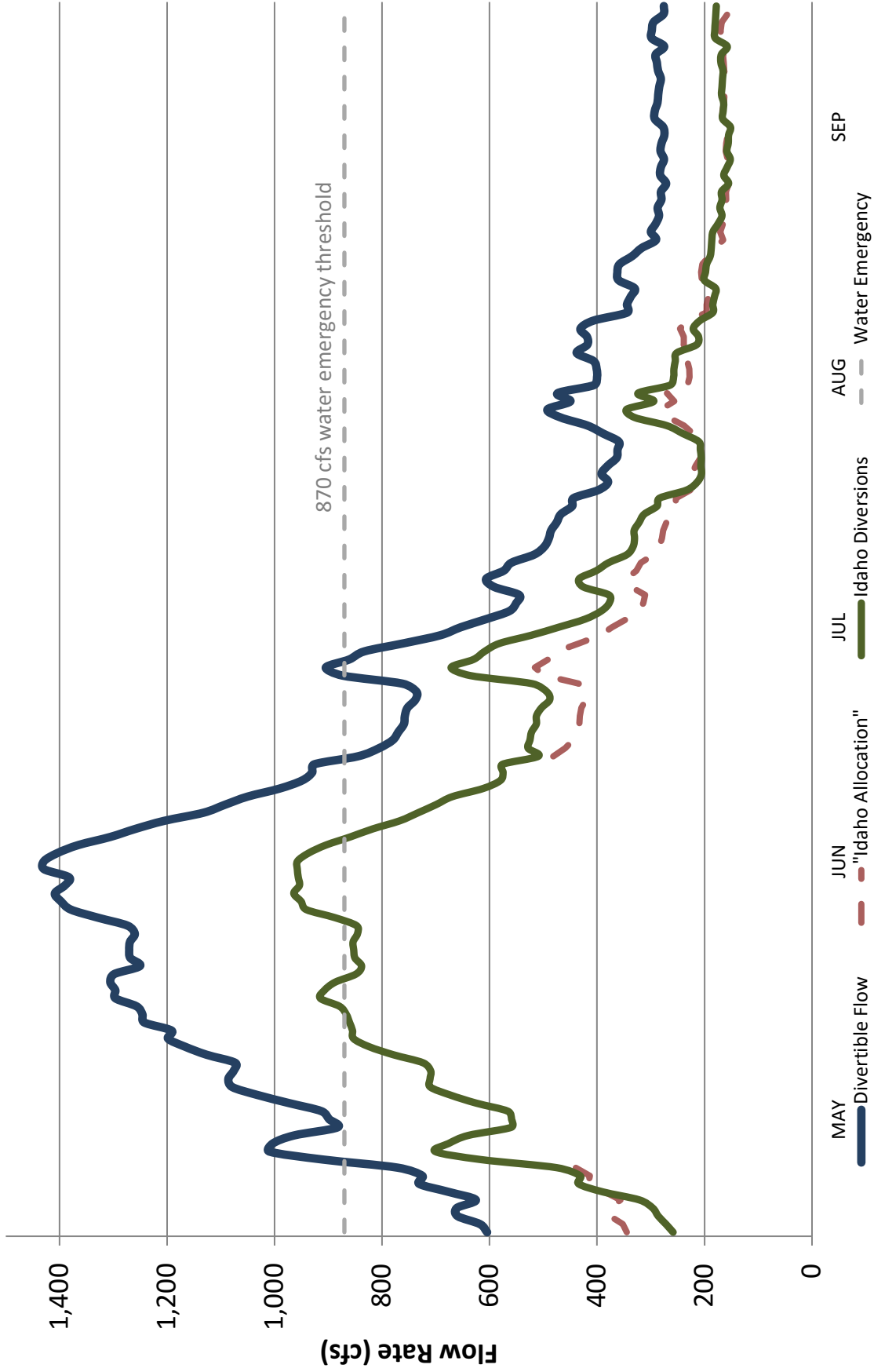


Figure 2015.13

Lower Division

The Compact provides that a Utah Lower Division water user can petition the Commission for interstate regulation if he believes that he is being deprived of water to which he is justly entitled due to diversions in Idaho. If, upon review, the Commission finds such to be the case, then the Compact provides for the declaration of a water emergency and that it shall put into effect water delivery schedules based on priority of rights without regard to the state line. The Commission has never received such a petition. However, with growing concern for such a possibility, the Commission, over a several year period, determined how it would receive and review such a petition and implement water delivery should a water emergency be declared. At its November meeting in 1997, the Commission adopted *Interim Procedures for Lower Division Water Delivery*. Appendix B to the procedures, which was revised with the procedures in April 2004, provides for the accounting and distribution method to be used in a water emergency.

Also appended to the procedures is *Water Delivery Schedule No. 1* which was revised by the Commission in 2015 and which includes the mainstem Lower Division water rights in both Idaho and Utah. After adoption of the water delivery schedule, both states began using this common schedule of water rights in their water right accounting programs. Hence, though not regulated by the Commission, the distribution in the Lower Division is cooperatively managed by the states of Idaho and Utah through their respective Watermasters and River Commissioners. Such distribution was facilitated in 2015 with bi-weekly conference calls with the state agencies, large water users and PacifiCorp. Figure 2015.15 shows the delivery of water in the Lower Division as reported by the two state agencies.

2015 Lower Division Irrigation Water Deliveries

Canal/Group	Natural Flow (af)	Storage Use (af)	Total Diversion (af)
Idaho			
Gentile Valley	7,868	124	7,992
West Cache	36,079	7,215	43,294
Cub River Pumps	1,713	13,937	15,650
Last Chance and Bench B	64,720	8,738	73,458
Idaho Small Irrigators	4,345	741	5,086
Utah			
Bear River Canal Company	141,611	77,025	218,636
Utah Small Irrigators	3,835	5,700	9,235

Figure 2015.15

Allocation and deliveries of Bear Lake storage water are significant in most years to the total water diverted in the Lower Division. In 1995, PacifiCorp, the irrigators and Bear Lake interests entered into a settlement agreement as to the allocation of storage water from Bear

Lake. In 2004 the parties entered into an *Amended and Restated Bear Lake Settlement Agreement*. PacifiCorp tracks deliveries pursuant to the settlement agreement. Figure 2015.16 shows such deliveries in 2015.

2015 Bear Lake Storage Deliveries

Irrigation Storage Allocation	245,000 af
Bear Lake Storage Release	117,000 af
Lake Recovery Volume	128,000 af
Decreed Transit Losses ¹	
System Losses ²	22,100 af
Delivered Bear Lake Storage	94,900 af

¹Approximate, based on average rate for all irrigators

²Water that passes below Cutler Dam that is accounted for as storage water release

Figure 2015.16

Due to the summer rains which reduced the irrigation demands, the irrigation storage use was less than in most years.

STATE WATER ACTIVITIES

Article XI of the Amended Compact provides that applications for appropriation or change in water use within each state shall be in accordance with individual state law, except no such application shall be approved if the effect will deprive water users within another state or increase the depletion beyond that which is provided for under the Compact. This article further requires that state officials report, in a format and at intervals established by the Commission, the status of their respective allocations and uses. The Commission has determined the best format for reporting such changes in use is the Biennial Report. Figure O.3 in the Overview section of this report provides the most recent depletion information. This portion of the Biennial Report provides a summary of major water and water right related activities in each of the states during the 2015 water year.

Idaho

Water Activities

In November, 2014, public information meetings were held in Malad City, Preston, Soda Springs and Montpelier to discuss a proposal to adjudicate water rights in the Bear River Basin. No legislation was proposed during the following legislative session to commence an adjudication in the basin.

In January, 2015, Oneida County requested a temporary moratorium on new wells in the Malad Valley pending a study of hydrologic conditions in the area. Monitoring wells in the area demonstrate a declining resource; however, spatial coverage of the wells is limited and further data collection was recommended.

Water Rights

Water right permits were issued in Basins 11, 13 and 15 as shown in the table below:

<u>Right No.</u>	<u>Priority Date</u>	<u>Rate (cfs)</u>	<u>Source</u>	<u>Water Use</u>	<u>Total Acres</u>
11-7796	10/7/2014	2.150	GROUND WATER	COMMERCIAL, DOMESTIC	
11-7806	2/9/2015	0.030	UNNAMED SPRINGS	STOCKWATER	
11-7814	6/2/2015	0.020	UNNAMED SPRING	STOCKWATER	
13-7853	5/21/2012	60.000	CUB RIVER, MINK CK	POWER	
13-7906	12/5/2013	38.360	CUB RIVER	POWER	
13-7915	5/15/2014	0.140	WASTE WATER	STOCKWATER	
13-7932	2/24/2015	0.020	SPRING	DOMESTIC	
13-7933	2/24/2015	0.020	SPRING	STOCKWATER	
13-7934	3/9/2015	1.000	BEAR RIVER	INDUSTRIAL	
13-7938	4/14/2015	0.020	SPRING	DOMESTIC	
13-7939	4/14/2015	0.020	SPRING	DOMESTIC	
13-7940	4/20/2015	0.020	SPRING	DOMESTIC	
13-7944	5/11/2015	0.010	SPRING	STOCKWATER	
13-7945	5/20/2015	0.080	GROUND WATER	DOMESTIC	

13-7946	5/13/2015	0.020	HILLSIDE SPRING	DOMESTIC	
15-7369	10/19/2013	0.850	GROUND WATER	DOMESTIC, IRRIG, STOCKWATER	42.5
15-7381	8/5/2014	0.480	GROUND WATER	DOMESTIC, IRRIGATION	24.0
15-7389	10/10/2014	3.980	GROUND WATER	IRRIGATION	199.1
15-7392	11/26/2014	4.660	GROUND WATER	IRRIGATION	233.2
15-7393	11/26/2014	2.300	GROUND WATER	IRRIGATION	230.0
15-7394	12/31/2014	1.600	GROUND WATER	IRRIGATION	80.0
15-7399	1/16/2015	3.200	GROUND WATER	IRRIGATION	160.0
15-7401	2/19/2015	1.010	GROUND WATER	IRRIGATION	74.9
15-7402	3/11/2015	0.040	GROUND WATER	IRRIGATION	2.0
15-7405	3/30/2015	0.160	GROUND WATER	IRRIGATION	8.0
15-7406	4/3/2015	1.720	GROUND WATER	IRRIGATION, STOCKWATER	85.0
15-7409	5/15/2015	0.800	GROUND WATER	IRRIGATION, STOCKWATER	39.0

Several transfer applications were approved with point of diversion, place of use, and/or nature of use changes; four approvals in Basin 11, ten approvals in Basin 13, and six approvals in Basin 15.

Utah

Water Activities

In 2015, the Division of Water Resources (DWRe) completed the geotechnical, geological and environmental field studies for six potential reservoir sites. The geotechnical and geologic field work have allowed the consultant to provide potential dam conceptual designs for each site. This phase of the study effort will provide additional information to DWRe to determine the feasibility of the sites, update cost estimates and study reservoir combinations that could possibly function together as a water system.

The Scope of Work also includes ongoing refinement of the pipeline alignment, project management, public relations and inter-agency coordination assistance.

In this study, the potential depletion of Bear River water from the GSL system has been estimated at a very conceptual level. Based on existing depletion percentages for Municipal and Industrial (M&I) use for several cities in Northern Utah, the full development of 220,000 acre-feet from the Bear River for M&I use in Northern Utah would result in about 86,000 acre-feet of depletion from the GSL system. Inputting this total in the GSL model indicates an average drop in GSL elevation of about 0.7 feet from 220,000 acre-feet developed.

Current projections from the four Project entities indicate that water from the Project will be needed sometime around 2040 or beyond. The current study is expected to be completed in late 2016.

A cloud seeding project to increase snowpack has been ongoing since 1989 in the Lower Division in Eastern Box Elder County and Cache County. The winter storm systems in these areas were seeded with 23 ground-based generators using silver iodide at a total cost of

\$102,200. Bear River Water Conservancy District and Cache County cost shared (50/50) with the Utah Board of Water Resources in the cloud seeding project during the 2015 water year.

Water Rights

There were 29 applications to appropriate that were approved in Utah during 2015 for ground water for “ordinary domestic and stockwatering” purposes and associated irrigation use for 30 homes. There were also 3 applications to appropriate approved for stockwatering 661 livestock.

In the Upper Division, in Rich County, there was an application to appropriate from a well approved for irrigation of 10.5 acres. In the Lower Division, in Cache County, two applications to appropriate were approved for hydro-power generation.

Change applications were also approved to change the points of diversion, nature and/or place of use of historic water rights. Three change applications have been approved to change points of diversion from Bear River to the end of the new Cub River Irrigation Co. pipeline in Utah.

Wyoming

Water Activities

This year brought changes to Water Division IV with the retirement of Jade Henderson in February after 22 years as Superintendent of Water Division IV. Kevin Payne was appointed as the new Superintendent in April. Beth Ross joined the Interstate Streams Division as the new Water Planning Coordinator to replace Jodee Pring, who departed in 2014. Beth now serves on the Technical Advisory Committee alongside Kevin Payne and Mike Johnson and has contributed to the state’s updated depletions methodology efforts.

An early in-state call for regulation for Wyoming canals below Woodruff Narrows was received in April. This call caused those canals to halt their portion of storage in Woodruff Narrows Reservoir from then on, although there was no official compact regulation. Wyoming did a voluntary regulation between Utah and Wyoming using Compact allocations.

Water Rights

New water right permits subject to Compact depletions issued from Wyoming’s allocation are as follows:

<u>Permit No.</u>	<u>Appropriator</u>	<u>Priority Date</u>
P203333W	Teichert Brothers LLC	November 20, 2014
P203332W	Teichert Brothers LLC	November 20, 2014
P204258W	Teichert Brothers LLC	July 2, 2015
204756W	Ernest Thornock	September 18, 2015

STREAM GAGING

As was indicated in the Overview chapter of this report, under the subsection concerning the Stream Gaging Program, the Bear River Commission participates in a cooperative contract with the USGS for the maintenance of stream gages on the Bear River and significant tributaries. Also, the states, PacifiCorp and, at times, others participate in stream gaging on the Bear River and its tributaries. The Commission believes the collection of data concerning stream flows in the Bear River system is very important and allocates about half of its annual budget in support of the cooperative stream gaging program with the U.S. Geological Survey. However, costs continue to increase and so the Commission is constantly reviewing the stream gaging program to determine if all of the stations supported are necessary for the Commission to help the Commission fulfill the responsibilities assigned to it by the Compact. There were no changes to the Commission's stream gaging program in 2015.

During 2015, a total of 32 gages were maintained on the Bear River system. Of these 32 gages, 5 were part of a cooperative effort between the Bear River Commission and the USGS, and the USGS funded 7 gages under NSIP. PacifiCorp maintained 15 gages on the Bear River system during 2015. Three additional gages were maintained under the USGS Cooperative Program with the State of Utah (2 gages) and the State of Idaho (1 gage). Additionally, the State of Wyoming maintained 1 gage on the Bear River and the USFWS funded 1 USGS gage. Figure 2015.17 shows a tabulation of these gages and the entities which participated in the operation and funding of each gage. The approximate locations of the stream gages are shown on Figure O.5 in the Overview section of this report.

Publication of the streamflow records for 12 of the gages in this report were considered to be of significant value to the Commission and are included on pages 15-36 through 15-48.

BEAR RIVER SYSTEM STREAM GAGING STATIONS STREAM GAGES MAINTAINED DURING THE 2015 WATER YEAR

STATION #	STATION NAME	OPERATED BY	MEASUREMENT FUNDED BY	PUBLICATION FUNDED BY
<u>10011500</u> ¥	Bear River near UT-WY state line	USGS	USGS	USGS
10016900 ¹ ¥	Bear River at Evanston WY	USGS-WY	USGS	USGS
<u>10020100</u> ¥	Bear River above reservoir near Woodruff UT	USGS	USGS	USGS
<u>10020300</u>	Bear River below reservoir near Woodruff UT	USGS	BRC/USGS	BRC/USGS
10023000	Big Creek near Randolph UT	USGS	UTDNR/USGS	UTDNR/USGS
10026500	Bear River near Randolph UT	WY	State of WY	WSE/WY-USGS
<u>10028500</u> ²	Bear River below Pixley Dam near Cokeville WY	USGS	BRC/USGS	BRC/USGS
<u>10032000</u>	Smiths Fork near Border WY	USGS	BRC/USGS	BRC/USGS
10038000¥	Bear River below Smiths Fork near Cokeville WY	USGS	USGS	USGS
<u>10039500</u>	Bear River at Border WY	USGS	BRC/USGS	BRC/USGS
10044300	Dingle Inlet Canal near Dingle ID	PacifiCorp	PacifiCorp	not published
<u>10046000</u>	Rainbow Inlet Canal near Dingle ID	PacifiCorp	PacifiCorp	PacifiCorp
10046500 ³	Bear River below Stewart Dam near Montpelier ID	PacifiCorp	PacifiCorp	not published
<u>10055500</u>	Bear Lake at Lifton near St. Charles ID	PacifiCorp	PacifiCorp	PacifiCorp
<u>10059500</u>	Bear Lake Outlet Canal near Paris ID	PacifiCorp	PacifiCorp	PacifiCorp
10068500	Bear River at Pescadero ID	USGS	IDDNR/USGS	IDDNR/USGS
10075000	Bear River at Soda Springs ID	PacifiCorp	PacifiCorp	PacifiCorp
10079000	Soda Point Reservoir at Alexander ID	PacifiCorp	PacifiCorp	PacifiCorp
10079500	Bear River at Alexander ID	PacifiCorp	PacifiCorp	PacifiCorp
10080000	Bear River below Grace Dam near Grace ID	PacifiCorp	PacifiCorp	PacifiCorp
10086000	Oneida Narrows Reservoir at Oneida ID	PacifiCorp	PacifiCorp	PacifiCorp
10086500	Bear River below PacifiCorp Tailrace at Oneida ID	PacifiCorp	PacifiCorp	PacifiCorp
<u>10092700</u>	Bear River at ID-UT state line	USGS	BRC/USGS	BRC/USGS
10105900	Little Bear River at Paradise UT	USGS	UTDNR/USGS	UTDNR/USGS
10108400¥	Logan, Hyde Park, Smithfield Canal near Logan UT	USGS	USGS	USGS
<u>10109000</u> ⁴ ¥	Logan River above State Dam near Logan UT	USGS	USGS	USGS
10113500¥	Blacksmith Fork abv Upper & Lower Dam Near Hyrum UT	USGS	USGS	USGS
10116500	Cutler Reservoir near Collinston UT	PacifiCorp	PacifiCorp	PacifiCorp
10117000	Hammond (East Side) Canal near Collinston UT	PacifiCorp	PacifiCorp	PacifiCorp
10117500	West Side Canal near Collinston UT	PacifiCorp	PacifiCorp	PacifiCorp
10118000	Bear River near Collinston UT	PacifiCorp	PacifiCorp	PacifiCorp
<u>10126000</u>	Bear River near Corinne UT	USGS	USFWS	USFWS/USGS

Notes:

— Underlined station numbers indicate those gages for which stream flow data is published in this report.
 ¥ NSIP site.

¹ This gage was operated from March 25 until September 30, 2015

² This gage is operated seasonally from April 1 until September 30 each year.

³ Discharge measurements below Stewart Dam are required for interstate regulation pursuant to the Compact. However, flow is general only a few cfs. PacifiCorp maintains this gage and reports discharge to the Idaho watermaster. The data are included with the Central Division's canal diversion data herein.

⁴Gage 10109001 represents a summation of the Logan River discharge (10109000) and canal diversions (10108400) upstream of the gage. This is not a physical river gage. Gages 10109000 and 10108400 are part of the NSIP program.

Figure 2015.17

10011500 BEAR RIVER NEAR UTAH-WYOMING STATE LINE

LOCATION.--Lat 40°57'55", long 110°51'10" referenced to North American Datum of 1927, in SE ¼ NW ¼ SE ¼ sec.30, T.3 N., R.10 E., Summit County,UT, Hydrologic Unit 16010101, on left bank 400 ft downstream from West Fork and 2.8 mi upstream from Utah-Wyoming State line.

DRAINAGE AREA.--172 mi².

PERIOD OF RECORD.--July 1942 to current year.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 7,965 ft above NGVD of 1929, from river-profile map. Prior to October 1, 1986 at datum 3.0 ft higher.

REMARKS.-- Records good except for estimated daily discharges which are poor and other periods as noted. Records fair May 20, 2014 through Jun. 17, 2014 due to variable control conditions from snow-melt runoff. Flow regulated slightly by Whitney Reservoir, total capacity, 4,700 acre-ft since 1966. Three diversions above station for irrigation of about 265 acres above and 2,600 acres below station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,390 ft³/s, Jun 30, 2011, gage height, 7.82 ft; minimum, 6.8 ft³/s, Apr 12, 1984, result of upstream ice jam.

DISCHARGE, CUBIC FEET PER SECOND

YEAR 2014-10-01 to 2015-09-30

DAILY MEAN VALUES

[e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	303	87	58	e30	e40	e48	176	399	890	179	72	73
2	255	96	57	e38	e46	e47	152	419	933	164	71	72
3	230	89	59	e44	e49	50	131	500	889	204	94	69
4	211	71	63	e49	e50	49	128	503	773	195	104	68
5	196	93	62	e53	e47	48	126	475	774	223	80	69
6	185	87	61	e52	e49	48	123	545	739	203	74	69
7	173	87	59	e50	49	48	113	502	750	201	77	67
8	163	81	58	e49	49	50	106	410	700	221	136	66
9	157	81	61	e45	49	46	103	375	748	225	98	66
10	150	85	59	e47	49	47	103	328	770	268	87	66
11	143	64	59	e49	45	49	108	297	894	198	81	68
12	151	60	58	e49	52	49	115	297	806	153	80	69
13	149	53	58	e50	49	49	112	307	763	127	88	68
14	146	84	59	e48	52	53	133	316	734	116	79	66
15	144	72	e51	e48	52	60	134	327	689	121	74	75
16	134	64	e55	e49	45	73	122	298	776	127	70	114
17	125	70	e56	e49	e43	84	116	319	686	121	67	105
18	121	75	e56	e49	e46	93	116	314	611	119	61	97
19	114	72	e56	e49	e50	91	124	309	542	112	66	78
20	111	70	57	e48	e46	90	125	301	468	111	66	71
21	112	68	56	e46	e44	100	143	317	390	111	65	69
22	110	66	54	e40	e40	100	152	315	355	158	64	67
23	104	64	52	e44	e38	99	161	287	322	119	63	66
24	101	64	e54	e43	e46	89	170	291	290	102	62	64
25	95	66	e56	e48	e48	88	181	345	265	94	63	64
26	105	63	e53	e47	e49	84	171	349	244	89	72	62
27	102	61	e49	e46	e44	99	152	365	227	84	75	61
28	88	59	e52	e47	e48	124	178	539	216	82	82	60
29	90	57	e48	e44		140	248	439	199	80	80	54
30	88	57	e27	e43		151	343	482	192	77	78	51
31	86		e21	e42		171		680		74	77	
Total	4,442	2,166	1,684	1,435	1,314	2,417	4,365	11,950	17,640	4,458	2,406	2,114
Mean	143	72.2	54.3	46.3	46.9	78.0	146	385	588	144	77.6	70.5
Max	303	96	63	53	52	171	343	680	933	268	136	114
Min	86	53	21	30	38	46	103	287	192	74	61	51
Ac-ft	8,811	4,296	3,340	2,846	2,606	4,794	8,658	23,70	34,980	8,842	4,772	4,193

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943-2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	66.1	55.0	45.7	41.6	39.7	44.0	113	597	826	298	93.4	75.5
Max	208	106	94.9	72.4	64.3	78.0	316	1,044	1,990	1,371	244	229
(WY)	(1983)	(1984)	(1984)	(1984)	(1984)	(2015)	(1946)	(1984)	(1986)	(2011)	(1965)	(1983)
Min	30.8	32.5	27.7	28.9	21.1	26.0	37.2	162	204	67.4	31.0	23.9
(WY)	(1959)	(1955)	(1960)	(2007)	(2003)	(1964)	(1944)	(1977)	(1992)	(1961)	(2002)	(1956)

Figure 2015.17 (cont.)

10020100 BEAR RIVER ABOVE RESERVOIR, NEAR WOODRUFF, UT

LOCATION.--Lat 41°26'04", long 111°01'01" referenced to North American Datum of 1927, in NE ¼ NW ¼ sec.29, T.17 N., R.120 W., Uinta County, WY, Hydrologic Unit 16010101, on right bank 9.3 mi upstream from Woodruff Narrows Dam and 10 mi southeast of Woodruff.

DRAINAGE AREA.--755 mi².

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 6,455 ft above NGVD of 1929, from river-profile map.

REMARKS.-- Diversion for irrigation of about 43,500 acres above station. Records are good except estimated daily discharges which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,150 ft³/s, Jun 2, 1983, gage height, 6.17 ft; minimum, no flow several days during Aug, Sep 1988, and Sep 2002.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2014-10-01 to 2015-09-30 DAILY MEAN VALUES [e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	368	81	87	e49	e74	68	162	237	691	11	6.8	36
2	319	81	90	e60	e75	69	165	257	832	9.5	5.7	36
3	268	100	88	e68	e85	72	139	283	791	10	5.5	29
4	229	95	86	e74	e89	74	115	326	685	27	12	28
5	204	74	88	e79	e93	82	110	320	597	48	30	24
6	183	89	91	e83	e97	74	101	342	595	63	20	24
7	172	85	79	e82	e97	71	83	433	713	67	21	28
8	164	86	75	e81	e95	83	78	405	691	67	30	30
9	150	82	72	e79	e93	96	68	433	624	87	60	31
10	146	83	70	e73	e91	112	37	424	588	99	57	28
11	146	90	68	e78	e85	124	32	318	668	141	42	26
12	142	e48	74	e78	93	128	27	234	724	127	51	25
13	149	e59	83	e76	90	121	29	196	598	97	35	26
14	146	e75	70	e73	89	121	28	188	507	71	26	30
15	146	e58	e59	e69	94	118	51	194	446	47	22	42
16	137	e52	e54	e65	82	122	76	220	474	32	16	55
17	127	e66	e57	e66	68	134	83	266	529	19	11	77
18	119	e68	e59	e70	55	144	74	367	409	16	18	58
19	111	e80	e60	e67	61	152	71	365	297	12	24	46
20	107	e88	e60	e70	81	144	77	513	236	10	19	37
21	106	e94	e61	e65	73	124	70	498	190	9.0	30	28
22	104	e90	e58	e65	63	120	76	574	153	17	28	25
23	106	e85	e56	e68	45	128	90	591	116	33	29	22
24	95	e86	e56	e68	54	140	106	506	87	33	30	18
25	91	e91	e58	e73	64	120	114	497	50	17	29	19
26	87	e93	e58	e73	66	113	133	572	31	10	27	20
27	89	98	e52	e74	68	100	133	547	22	7.8	33	21
28	96	97	e56	e75	63	113	114	595	18	8.6	39	23
29	84	97	e50	e73		133	117	751	15	7.0	42	25
30	83	94	e34	e74		151	173	601	14	11	36	23
31	85		e28	e75		150		567		13	34	
Total	4,559	2,465	2,037	2,223	2,183	3,501	2,732	12,620	12,390	1,227	869	940
Mean	147	82.2	65.7	71.7	78.0	113	91.1	407	413	39.6	28.0	31.3
Max	368	100	91	83	97	152	173	751	832	141	60	77
Min	83	48	28	49	45	68	27	188	14	7.0	5.5	18
Ac-ft	9,043	4,889	4,040	4,409	4,330	6,944	5,419	25,030	24,580	2,434	1,724	1,864

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 -2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	66.7	65.9	64.2	62.4	74.5	151	308	765	797	190	47.4	46.2
Max	437	198	181	147	312	627	671	1,957	2,564	1,355	340	288
(WY)	(1983)	(1974)	(1984)	(1984)	(1986)	(1986)	(1969)	(1984)	(1986)	(2011)	(1983)	(1983)
Min	3.03	6.06	7.21	6.76	10.4	26.8	77.7	104	47.4	4.41	.68	.49
(WY)	(1965)	(1989)	(1989)	(1989)	(2003)	(1977)	(1977)	(1977)	(2012)	(2000)	(2000)	(1988)

Figure 2015.17 (cont.)

10020300 BEAR RIVER BELOW RESERVOIR, NEAR WOODRUFF, UT

LOCATION.--Lat 41°30'20", long 111°00'50" referenced to North American Datum of 1927, in NE ¼ NE ¼ NW ¼ sec.32, T.18 N., R.120 W., Uinta County, WY, Hydrologic Unit 16010101, on right bank 1,100 ft downstream from Woodruff Narrows Dam, 1.6 mi upstream from Salt Creek, 5.4 mi upstream from Wyoming-Utah State line, and 7.7 mi east of Woodruff.

DRAINAGE AREA.--784 mi².

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 6,398.96 ft above NGVD of 1929. Prior to September 26, 1962, at site 175 ft upstream at same datum.

REMARKS.-- Flow regulated by Woodruff Narrows Reservoir (station 10020200) beginning January 1962. Diversions for irrigation of about 43,500 acres above station. Records are good, except estimated daily discharges which are poor, and other exceptions as noted. Aug 4 to Sep 30, 2014 records are fair (due to variable control conditions from rain storm event).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,820 ft³/s, Jun 2, 1983, gage height, 8.26 ft; no flow Jul 4, 5, 1962, Aug 30, 31, Sep 1, 2, 6, 7, 1979, Oct 30, 1980.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2014-10-01 to 2015-09-30 DAILY MEAN VALUES [e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	16	18	19	19	19	19	18	53	864	75	50	27
2	16	18	19	19	19	19	18	53	864	75	50	27
3	16	18	19	19	19	19	18	53	864	74	50	27
4	16	18	19	19	20	19	18	53	863	74	50	27
5	16	18	19	19	19	19	18	53	862	74	50	27
6	17	18	19	18	20	19	18	53	860	61	50	27
7	17	18	19	18	19	e19	18	69	823	50	50	27
8	17	19	19	18	19	e19	18	164	798	49	49	27
9	17	19	19	18	19	e19	18	278	799	49	49	27
10	17	19	19	18	20	e19	18	355	798	49	41	27
11	17	19	19	18	20	e19	18	362	797	48	30	27
12	18	19	19	18	20	e19	18	320	766	48	27	27
13	18	19	19	18	20	e19	18	262	744	49	27	27
14	18	19	19	18	20	e20	18	224	744	49	26	28
15	18	18	19	18	20	e20	18	207	744	49	27	27
16	18	19	19	19	20	e18	18	208	742	49	27	27
17	18	19	20	19	20	e17	18	215	741	49	27	27
18	17	19	19	19	20	e17	18	264	740	49	26	27
19	17	19	19	19	20	e17	18	326	738	49	27	20
20	17	19	19	19	20	e17	18	403	736	49	27	14
21	17	19	20	20	20	e17	18	470	733	49	27	14
22	17	19	19	19	19	e17	18	508	731	49	27	14
23	17	19	19	19	19	e17	36	558	726	49	27	14
24	18	19	19	19	19	e18	53	568	722	50	27	14
25	17	19	19	19	19	e18	53	546	718	50	27	14
26	17	19	19	19	19	e18	53	914	309	50	27	14
27	17	19	19	20	19	18	53	921	75	50	27	14
28	17	19	19	20	19	18	53	881	75	49	27	13
29	17	19	19	19		18	53	864	75	50	27	13
30	17	19	19	19		18	53	865	75	50	27	13
31	18		19	19		18		864		50	27	
Total	530	562	591	582	546	568	803	11,930	20,130	1,664	1,057	658
Mean	17.1	18.7	19.1	18.8	19.5	18.3	26.8	385	671	53.7	34.1	21.9
Max	18	19	20	20	20	20	53	921	864	75	50	28
Min	16	18	19	18	19	17	18	53	75	48	26	13
Ac-ft	1,051	1,115	1,172	1,154	1,083	1,127	1,593	23,670	39,920	3,300	2,097	1,305

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	52.7	47.8	41.1	39.2	40.4	83.1	248	737	950	266	71.2	56.6
Max	425	421	184	153	171	473	891	1,828	2,437	1,339	331	278
(WY)	(1983)	(1983)	(1983)	(1985)	(1971)	(1972)	(1985)	(1984)	(1983)	(2011)	(1983)	(1983)
Min	3.89	.12	4.28	4.37	4.71	4.70	.34	27.8	357	10.5	3.91	3.65
(WY)	(1990)	(1981)	(1978)	(1978)	(1978)	(1978)	(1977)	(1977)	(2002)	(2002)	(1979)	(1979)

10028500 BEAR RIVER BELOW PIXLEY DAM, NEAR COKEVILLE, WY

LOCATION.--Lat 41°56'20", long 110°59'05" referenced to North American Datum of 1927, in SW ¼ SE ¼ SE ¼ sec.25, T.23 N., R.120 W., Lincoln County, WY, Hydrologic Unit 16010102, 800 ft downstream from Pixley Dam, 11 mi south of Cokeville, and 17.5 mi downstream from Twin Creek.

DRAINAGE AREA.--2,032 mi².

PERIOD OF RECORD.--October 1941 to November 1943 (published as Bear River near Cokeville), October 1952 to September 1956, May 1958 to current year (seasonal only). Monthly discharge only for some periods, published in WSP 1314.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 6,185 ft above NGVD of 1929, from river-profile map. October 31, 1941 to November 30, 1943, at site 200 ft downstream at different datum. September 24, 1952 to August 31, 1994 at site 50 ft downstream at same datum. May 7, 2015 to August 14, 2015 at site 850 ft upstream at same datum.

REMARKS.-- Natural flow of stream affected by diversions for irrigation, return flow from irrigated areas, and regulation by upstream reservoirs. Records are fair except for estimated daily discharges which are poor and other periods as noted. 6/20/14 - 7/12/14; records are poor due to variable control conditions from backwater. 5/6/15 - 9/30/15; records are good.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,300 ft³/s, Mar 25, 1956; minimum daily discharge, 0.09 ft³/s, Sep 8, 2002.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2014-10-01 to 2015-09-30 DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	---	---	---	---	---	---	48	1.4	2.4	46	42	24
2	---	---	---	---	---	---	36	1.2	1.9	44	41	22
3	---	---	---	---	---	---	25	1.5	1.9	43	41	21
4	---	---	---	---	---	---	25	1.3	1.7	42	45	18
5	---	---	---	---	---	---	25	1.1	1.9	39	50	17
6	---	---	---	---	---	---	25	0.92	4.2	107	52	19
7	---	---	---	---	---	---	25	1.1	6.7	159	51	17
8	---	---	---	---	---	---	25	1.4	7.6	198	54	16
9	---	---	---	---	---	---	25	1.1	7.8	182	58	14
10	---	---	---	---	---	---	25	1.4	8.8	154	60	13
11	---	---	---	---	---	---	25	1.5	9.4	149	55	13
12	---	---	---	---	---	---	25	1.4	36	143	57	14
13	---	---	---	---	---	---	25	1.3	59	156	64	15
14	---	---	---	---	---	---	22	1.3	59	150	62	12
15	---	---	---	---	---	---	22	1.3	57	136	57	9.7
16	---	---	---	---	---	---	23	1.1	56	131	49	13
17	---	---	---	---	---	---	22	1.0	56	126	45	14
18	---	---	---	---	---	---	12	1.1	55	124	40	14
19	---	---	---	---	---	---	1.6	1.2	55	121	38	14
20	---	---	---	---	---	---	1.5	1.5	56	121	37	15
21	---	---	---	---	---	---	1.5	1.7	58	102	37	17
22	---	---	---	---	---	---	1.5	1.5	51	111	38	25
23	---	---	---	---	---	---	1.5	1.2	48	121	39	33
24	---	---	---	---	---	56	1.3	1.3	49	98	37	27
25	---	---	---	---	---	57	1.5	1.6	52	88	34	26
26	---	---	---	---	---	59	1.1	1.7	54	73	29	29
27	---	---	---	---	---	58	1.1	1.9	55	64	27	37
28	---	---	---	---	---	56	1.1	1.9	55	57	26	38
29	---	---	---	---	---	55	1.3	1.9	51	53	25	35
30	---	---	---	---	---	53	1.4	2.1	48	49	25	33
31	---	---	---	---	---	52	---	2.3	---	43	24	---
Total							476	44.2	1,064	3,230	1,339	615
Mean							15.9	1.43	35.5	104	43.2	20.5
Max							48	2.3	59	198	64	38
Min							1.1	0.92	1.7	39	24	9.7
Ac-ft							945	87.7	2,111	6,407	2,656	1,219

Figure 2015.17 (cont.)

10032000 SMITHS FORK NEAR BORDER, WY

LOCATION.--Lat 42°17'36", long 110°52'18" referenced to North American Datum of 1927, in NE ¼ SW ¼ sec.28, T.27 N., R.118 W., Lincoln County, WY, Hydrologic Unit 16010102, on left bank 4.9 mi upstream from Howland Creek, 5.6 mi downstream from Hobbles Creek, and 12.4 mi northeast of Border.

DRAINAGE AREA.--165 mi².

PERIOD OF RECORD.--May 1942 to current year.

REVISED RECORDS.--WSP 1734: 1952(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 6,720 ft above NGVD of 1929, from topographic map. Prior to October 16, 1945, at site 1.2 mi downstream at different datum. October 16, 1945 to November 1986 at site 0.4 mi downstream at different datum.

REMARKS.-- Records good except for estimated daily discharges which are poor. One diversion for irrigation of about 200 acres above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,100 ft³/s, Jun 4, 1986, gage height, 5.66 ft; minimum, 19 ft³/s, Feb 28, 2007.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2014-10-01 to 2015-09-30 DAILY MEAN VALUES

[e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	157	99	85	e55	e65	e68	209	378	703	298	162	114
2	141	100	85	e68	69	e67	188	399	746	290	160	112
3	132	98	84	e75	72	69	173	423	732	282	166	112
4	127	95	84	e80	73	e66	169	444	709	276	172	110
5	123	97	85	e84	69	e64	167	463	673	279	160	110
6	121	95	83	e79	68	e70	170	479	672	285	158	110
7	119	94	83	e77	70	e70	165	521	640	275	156	109
8	117	94	81	e76	71	e69	161	539	621	278	164	108
9	116	93	78	e73	72	e69	161	549	621	261	157	107
10	115	95	80	e75	72	e70	159	538	635	255	151	106
11	114	90	80	e76	e68	71	165	508	651	244	147	105
12	127	89	82	e75	68	75	172	487	610	234	146	104
13	118	e85	81	e74	e69	76	169	477	591	228	145	103
14	115	e95	80	e72	69	80	183	479	561	223	141	105
15	113	e90	78	e72	71	85	191	499	541	219	142	118
16	112	e85	e78	e73	e70	90	179	511	528	215	138	128
17	111	e90	e78	e73	e64	100	184	499	499	213	135	120
18	109	e93	e78	73	e73	111	207	473	477	217	133	115
19	107	e92	78	73	e74	115	226	490	459	208	133	108
20	107	e91	78	e72	71	118	231	494	441	203	131	105
21	108	e90	81	e70	72	127	244	499	421	200	129	103
22	107	90	75	e65	e70	132	252	499	402	193	127	101
23	105	88	e72	e69	e62	134	272	563	388	193	126	100
24	103	e87	e75	e68	e70	129	283	562	373	185	124	99
25	103	e87	e78	e73	e72	121	298	574	358	180	122	98
26	105	87	e75	e72	e71	116	294	586	347	178	124	97
27	104	86	e72	e71	e70	124	279	601	335	179	126	97
28	101	87	e80	72	e69	144	280	631	323	179	121	100
29	101	86	e80	69		169	302	629	314	173	118	97
30	100	86	e53	68		175	347	622	306	169	117	96
31	99		e45	68		194		653		165	115	
Total	3,537	2,733	2,405	2,240	1,954	3,168	6,480	16,070	15,680	6,977	4,346	3,197
Mean	114	91.1	77.6	72.3	69.8	102	216	518	523	225	140	107
Max	157	100	85	84	74	194	347	653	746	298	172	128
Min	99	85	45	55	62	64	159	378	306	165	115	96
Ac-ft	7,016	5,423	4,770	4,443	3,876	6,284	12,850	31,870	31,100	13,840	8,620	6,341

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	90.3	77.9	68.2	62.9	60.1	62.6	158	521	608	289	150	108
Max	156	114	88.4	85.0	82.8	102	385	1,072	1,377	779	280	169
(WY)	(1987)	(1986)	(1983)	(1983)	(1984)	(2015)	(1946)	(1997)	(1986)	(2011)	(2011)	(2011)
Min	51.0	50.7	41.5	39.7	34.7	39.5	58.6	99.1	96.2	61.4	55.1	52.1
(WY)	(1978)	(1978)	(2002)	(2008)	(2003)	(1988)	(1975)	(1977)	(1977)	(1977)	(1977)	(1977)

Figure 2015.17 (cont.)

10039500 BEAR RIVER AT BORDER, WY

LOCATION.--Lat 42°12'40", long 111°03'11" referenced to North American Datum of 1927, in NE ¼ NE ¼ NE ¼ sec.15, T.14 S., R.46 E., Bear Lake County, ID, Hydrologic Unit 16010102, on left bank 0.2 mi west of Wyoming-Idaho State line, 0.5 mi west of Border, and 2.1 mi upstream from Thomas Fork.

DRAINAGE AREA.--2,480 mi².

PERIOD OF RECORD.--October 1937 to September 1996, October 1996 to September 2000 (seasonal), October 2000 to current year.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 6,051.63 ft above NGVD of 1929, unadjusted.

REMARKS.-- Natural flow of stream affected by regulation of upstream reservoirs, diversions for irrigation, and return flow from irrigated areas.

Records are good except estimated daily discharges which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,880 ft³/s, Jun 7, 1983, gage height, 9.69 ft; minimum discharge, 24 ft³/s, Apr 29, 30, 1977.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2014-10-01 to 2015-09-30 DAILY MEAN VALUES [e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	398	165	e208	e125	e193	188	185	199	663	416	177	106
2	373	164	e211	e138	e204	186	190	208	681	392	169	110
3	336	166	e212	e155	e222	185	175	233	726	418	167	107
4	328	165	e216	e170	e255	179	158	275	726	397	188	103
5	303	167	221	e177	e270	165	145	291	708	380	200	101
6	285	169	218	e175	e390	174	144	344	678	393	197	99
7	276	171	217	e175	e368	182	149	361	687	497	199	101
8	251	168	217	e177	e340	181	149	436	672	515	202	100
9	216	168	212	e175	e300	180	164	455	705	548	207	94
10	195	e169	209	e185	e295	181	164	497	709	509	198	91
11	194	e165	203	e190	e265	184	159	455	764	479	195	89
12	196	e151	205	e198	e250	179	162	416	794	448	186	88
13	203	e125	205	e196	245	171	166	405	810	417	154	87
14	224	e140	207	e188	239	185	170	397	810	403	163	88
15	205	e135	e193	e191	237	190	176	403	763	380	166	94
16	193	e125	e189	e192	232	195	187	461	771	353	160	104
17	192	e127	e196	e195	203	216	179	497	734	343	153	116
18	191	e133	e190	e191	191	227	181	463	675	346	144	115
19	188	e145	e193	e192	204	225	174	448	620	348	126	110
20	186	e158	e190	e185	212	223	177	483	567	333	119	104
21	184	e167	e195	e181	205	212	179	492	523	327	116	102
22	181	e180	e204	e177	189	206	191	517	520	302	118	102
23	180	e192	e168	e185	170	214	195	548	476	294	136	101
24	178	e190	e170	e187	185	222	212	599	446	285	142	110
25	175	e193	e183	e189	193	219	220	611	433	270	132	110
26	172	e208	e162	e194	196	209	224	624	424	259	133	107
27	172	e208	e150	e191	185	205	232	640	418	244	126	106
28	172	e208	e162	e197	183	211	186	658	406	233	123	111
29	171	e210	e155	e198		204	186	700	403	225	121	116
30	170	e212	e120	e197		190	181	678	408	209	102	112
31	168		e110	e197		187		651		192	105	
Total	6,856	5,044	5,891	5,663	6,621	6,075	5,360	14,440	18,720	11,150	4,824	3,084
Mean	221	168	190	183	236	196	179	466	624	360	156	103
Max	398	212	221	198	390	227	232	700	810	548	207	116
Min	168	125	110	125	170	165	144	199	403	192	102	87
Ac-ft	13,600	10,010	11,680	11,230	13,130	12,050	10,630	28,649	37,130	22,130	9,568	6,117

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	198	215	187	173	195	355	690	957	1,126	531	218	170
Max	752	693	563	381	479	1,293	1,979	3,158	3,829	2,837	752	671
(WY)	(1983)	(1983)	(1983)	(1985)	(1986)	(1986)	(1985)	(1952)	(1983)	(2011)	(1983)	(1983)
Min	43.5	74.6	97.2	77.6	75.2	105	71.2	74.4	62.2	54.2	42.3	38.5
(WY)	(2002)	(2002)	(2002)	(1993)	(1993)	(1988)	(1977)	(1977)	(1977)	(1977)	(1940)	(1940)

Figure 2015.17 (cont.)

**RAINBOW INLET CANAL NEAR DINGLE, ID
(10046000)**

STREAMFLOW RECORDS FOR WATER YEAR 2015

LOCATION.--Lat 42°13'48", long 111°17'43" referenced to North American Datum of 1927, in NW ¼ SW ¼ SE ¼ sec.3, T.14 S., R.44 E., BEAR LAKE County, Hydrologic Unit 16010201, on right bank 1.5 mi west of Dingle and 1.8 mi downstream from headworks at Stewart Dam.

PERIOD OF RECORD.--October 2006 to current year published by PacifiCorp. January 1922 to September 2006 published in United States Geological Survey Water-Data Reports. Monthly discharge only prior to October 1945, published in United States Geological Survey WSP 1314.

GAGE.--Water-stage recorder. Elevation of gage datum is 5,922.0 ft above NGVD of 1929, (by topographic survey). Prior to October 1, 1923, at site 300 ft downstream at different datum; October 1, 1923 to October 27, 1944, at site 0.5 mi downstream at different datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Canal diverts from Bear River at Stewart Dam in NE¼ sec. 34, T.013 S., R.0 44 E., for storage in Bear Lake. At times flow in canal is augmented by surplus water from Black Otter Slough entering at the station and by seepage and surplus water from irrigation. Flow contributions from Black Otter Slough is included in the values below.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 4,950 ft³/s, May 27, 1984; no flow Apr 28, 1977 and Oct 1, 1979.

DISCHARGE MEASUREMENT DATES.-- 10-7-14, 6-11-15, 6-16-15, 6-24-15, 7-1-15, 7-9-15, 7-14-15, 7-20-15, 8-1-15, 8-14-15, 8-16-15, 8-27-15, 9-6-15, 9-12-15,

**Rainbow Inlet Canal near Dingle, ID (10046000)
Water Year 2015 (October 2014 to September 2015)**

Daily Mean Values

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
1	300	250	225	180	175	215	220	7	574	323	128	97	
2	300	225	235	180	170	215	220	13	548	311	105	97	
3	300	225	240	185	180	215	200	13	530	290	100	75	
4	300	230	224	190	180	215	200	13	534	290	100	75	
5	300	230	224	190	200	215	180	25	539	290	100	75	
6	300	230	224	147	218	215	180	79	544	275	100	72	
7	298	240	224	147	218	200	180	110	538	270	100	72	
8	280	240	224	147	250	180	180	110	541	300	125	60	
9	260	245	224	147	250	180	170	140	542	421	150	70	
10	250	240	224	147	260	180	170	260	596	462	224	65	
11	225	240	224	147	260	180	170	370	613	482	224	60	
12	225	240	224	147	260	180	170	346	619	467	200	69	
13	225	240	224	147	260	180	202	317	618	424	200	65	
14	225	225	224	147	250	170	200	247	620	369	141	65	
15	200	200	224	147	250	170	200	247	628	323	135	65	
16	200	200	224	147	250	180	220	247	633	285	137	75	
17	200	200	215	155	250	180	220	300	614	260	135	75	
18	200	200	224	160	220	200	175	346	586	250	135	75	
19	200	200	224	160	220	220	150	378	548	245	100	70	
20	200	225	224	160	220	220	125	393	497	285	100	70	
21	200	215	224	160	220	230	125	390	449	285	100	70	
22	200	225	224	160	220	230	80	401	402	250	100	70	
23	200	225	224	160	220	220	80	448	370	225	76	65	
24	200	225	200	160	215	230	50	501	344	225	76	65	
25	270	225	200	160	215	230	50	529	324	215	76	65	
26	270	225	200	160	215	225	50	545	310	215	76	88	
27	270	225	200	160	215	225	50	551	300	215	97	88	
28	270	225	200	160	215	225	75	557	300	205	97	88	
29	270	225	200	165	220	225	75	565	308	195	97	88	
30	270	225	200	170	220	220	75	586	326	185	97	88	
31	270	190	170	170	220	220	594	594	180	97			
Monthly Statistics													
Total	7,678	6,765	6,761	4,962	6,276	6,390	4,442	9,628	14,895	9,017	3,728	2,222	82,764
Mean	248	226	218	160	224	206	148	311	497	291	120	74	227
Min	200	200	190	147	170	170	50	7	300	180	76	60	7
Max	300	250	240	190	260	230	220	594	633	482	224	97	633
Ins. Min	136	96	91	86	92	71	0	7	290	30	14	0	0
Ins. Max	444	312	240	190	260	230	294	605	642	497	343	97	642
Ac-ft	15,230	13,420	13,410	9,840	12,450	12,670	8,810	19,100	29,540	17,880	7,390	4,410	164,150

**PacifiCorp Energy
Reservoir Records
Bear Lake 2014-2015
Daily Contents (Acre Feet)**

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1	642775	652621	654593	661166	669066	690187	707404	716693	763332	759323	692171	634910	1
2	642119	652621	654593	661166	669724	690187	707404	717358	764670	756650	690187	631635	2
3	642775	652621	654593	661166	670383	690848	707404	718022	766007	753979	688204	628362	3
4	643431	652621	654593	661166	671042	690848	708068	716693	767345	751310	685560	625746	4
5	644087	652621	654593	661166	673020	690848	708068	716029	768684	748642	683578	623129	5
6	644087	652621	654593	661824	674998	691510	708068	715365	770022	746640	681597	620514	6
7	644744	652621	654593	661824	676976	691510	708068	714702	772698	744639	681597	618554	7
8	644744	652621	654593	661824	677636	691510	708731	714702	774707	742639	680277	616594	8
9	645400	652621	654593	661824	678296	692171	708731	714038	776046	739308	678956	614634	9
10	646056	652621	654593	661824	678956	692833	708731	715365	777386	735977	678296	612676	10
11	646712	652621	654593	661824	678956	693494	709394	717358	780067	733314	677636	610065	11
12	647368	652621	654593	662482	680277	694156	709394	720679	782077	730652	676976	607457	12
13	648024	652621	654593	662482	680937	694818	710057	722008	783418	728657	676317	604848	13
14	648681	652621	654593	663140	681597	695479	710720	723336	783418	727326	674998	601589	14
15	649337	653278	654593	663140	682257	696141	710720	724666	783418	725996	673679	600286	15
16	649994	653278	654593	663799	682917	696803	712710	725331	783418	724001	672361	598332	16
17	650650	653278	654593	663799	683578	696803	712710	726661	783418	722008	671701	598332	17
18	651307	653278	654593	664457	684899	697466	712710	727992	783418	720014	670383	598332	18
19	651307	653278	654593	664457	686221	698128	712710	729987	783418	718022	669066	598332	19
20	651307	653278	654593	665115	686882	698790	712710	731983	783418	715365	669066	597681	20
21	651307	653935	655250	665773	687543	699452	712710	733314	782747	714038	664457	597030	21
22	651964	653935	655907	665773	688204	700777	712710	735977	780737	712710	661824	596379	22
23	651964	653935	655907	666432	688865	701439	712710	738642	778726	710720	658536	595727	23
24	651964	653935	656564	667090	689526	702102	712710	740640	776716	708068	655250	595727	24
25	651964	653935	656564	667090	689526	702764	714038	743972	774707	705415	653278	594425	25
26	651964	654593	657221	667748	689526	703426	714038	747974	772029	703426	651307	594425	26
27	652621	654593	657221	667748	690187	704089	715365	751977	770022	701439	648681	593774	27
28	652621	654593	658536	667748	690187	704752	716693	754647	767345	700115	646056	593123	28
29	652621	654593	659851	668407		705415	716693	756650	764670	698128	643431	593123	29
30	652621	654593	660508	668407		706078	716693	759323	761996	696141	641464	592473	30
31	652621		661166	669066		706741		759323	694156		638186		31

Monthly Totals													Yearly Totals
Mean	648,682	653,300	655,695	664,223	681,507	697,147	711,296	730,045	775,336	724,801	668,873	606,274	684,765
Min	642,119	652,621	654,593	661,166	669,066	690,187	707,404	714,038	761,996	694,156	638,186	592,473	592,473
Max	652,621	654,593	661,166	669,066	690,187	706,741	716,693	759,323	783,418	759,323	692,171	634,910	783,418

Notes:

**PacifiCorp Energy
Reservoir Level Records
Bear Lake 2014-2015**

Daily Stage (Ft) Add 5900 for Elevation													
Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1	12.32	12.47	12.50	12.60	12.72	13.04	13.30	13.44	14.14	14.08	13.07	12.20	1
2	12.31	12.47	12.50	12.60	12.73	13.04	13.30	13.45	14.16	14.04	13.04	12.15	2
3	12.32	12.47	12.50	12.60	12.74	13.05	13.30	13.46	14.18	14.00	13.01	12.10	3
4	12.33	12.47	12.50	12.60	12.75	13.05	13.31	13.44	14.20	13.96	12.97	12.06	4
5	12.34	12.47	12.50	12.60	12.78	13.05	13.31	13.43	14.22	13.92	12.94	12.02	5
6	12.34	12.47	12.50	12.61	12.81	13.06	13.31	13.42	14.24	13.89	12.91	11.98	6
7	12.35	12.47	12.50	12.61	12.84	13.06	13.31	13.41	14.28	13.86	12.91	11.95	7
8	12.35	12.47	12.50	12.61	12.85	13.06	13.32	13.41	14.31	13.83	12.89	11.92	8
9	12.36	12.47	12.50	12.61	12.86	13.07	13.32	13.40	14.33	13.78	12.87	11.89	9
10	12.37	12.47	12.50	12.61	12.87	13.08	13.32	13.42	14.35	13.73	12.86	11.86	10
11	12.38	12.47	12.50	12.61	12.87	13.09	13.33	13.45	14.39	13.69	12.85	11.82	11
12	12.39	12.47	12.50	12.62	12.89	13.10	13.33	13.50	14.42	13.65	12.84	11.78	12
13	12.40	12.47	12.50	12.62	12.90	13.11	13.34	13.52	14.44	13.62	12.83	11.74	13
14	12.41	12.47	12.50	12.63	12.91	13.12	13.35	13.54	14.44	13.60	12.81	11.69	14
15	12.42	12.48	12.50	12.63	12.92	13.13	13.35	13.56	14.44	13.58	12.79	11.67	15
16	12.43	12.48	12.50	12.64	12.93	13.14	13.38	13.57	14.44	13.55	12.77	11.64	16
17	12.44	12.48	12.50	12.64	12.94	13.14	13.38	13.59	14.44	13.52	12.76	11.64	17
18	12.45	12.48	12.50	12.65	12.96	13.15	13.38	13.61	14.44	13.49	12.74	11.64	18
19	12.45	12.48	12.50	12.65	12.98	13.16	13.38	13.64	14.44	13.46	12.72	11.64	19
20	12.45	12.48	12.50	12.66	12.99	13.17	13.38	13.67	14.44	13.42	12.72	11.63	20
21	12.45	12.49	12.51	12.67	13.00	13.18	13.38	13.69	14.43	13.40	12.65	11.62	21
22	12.46	12.49	12.52	12.67	13.01	13.20	13.38	13.73	14.40	13.38	12.61	11.61	22
23	12.46	12.49	12.52	12.68	13.02	13.21	13.38	13.77	14.37	13.35	12.56	11.60	23
24	12.46	12.49	12.53	12.69	13.03	13.22	13.38	13.80	14.34	13.31	12.51	11.60	24
25	12.46	12.49	12.53	12.69	13.03	13.23	13.40	13.85	14.31	13.27	12.48	11.58	25
26	12.46	12.50	12.54	12.70	13.03	13.24	13.40	13.91	14.27	13.24	12.45	11.58	26
27	12.47	12.50	12.54	12.70	13.04	13.25	13.42	13.97	14.24	13.21	12.41	11.57	27
28	12.47	12.50	12.56	12.70	13.04	13.26	13.44	14.01	14.20	13.19	12.37	11.56	28
29	12.47	12.50	12.58	12.71	13.04	13.27	13.44	14.04	14.16	13.16	12.33	11.56	29
30	12.47	12.50	12.59	12.71	13.04	13.28	13.44	14.08	14.12	13.13	12.30	11.55	30
31	12.47		12.60	12.72		13.29		14.08	13.10	12.25			31

BEAR LAKE STATISTICS													
Monthly													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Yearly
Daily Mean	12.41	12.48	12.52	12.65	12.91	13.15	13.36	13.64	14.32	13.56	12.72	11.76	12.96
Daily Min	12.31	12.47	12.50	12.60	12.72	13.04	13.30	13.40	14.12	13.10	12.25	11.55	11.55
Daily Max	12.47	12.50	12.60	12.72	13.04	13.29	13.44	14.08	14.44	14.08	13.07	12.20	14.44

Notes: Based on lake elevations taken at Utah State Park Marina.



**BEAR LAKE OUTLET CANAL
NEAR PARIS, ID
(10059500)**

STREAMFLOW RECORDS FOR WATER YEAR 2015

LOCATION.--Lat 42°13'00", long 111°20'35" referenced to North American Datum of 1927, in SW ¼ NW ¼ SW ¼ sec.8, T.14 S., R.44 E., Bear Lake County, ID, Hydrologic Unit 16010201, on right bank 2,000 ft downstream from headgates (at dike) and 3 mi southeast of Paris.

PERIOD OF RECORD.--October 2006 to current year published by PacifiCorp. September 1945 to September 2006 published in USGS Water Data Reports. Monthly discharge only January 1922 to September 1945, published in WSP 1314.

GAGE.--Water-stage recorder. Datum of gage is 5,912.6 ft above NGVD of 1929, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 3,080 ft³/s, Jun 19-21, 1986; minimum daily discharge, 1.0 ft³/s, for many days in 1937, 1954, 1959, 1961,

DISCHARGE MEASUREMENT DATES.-- 8-26-14, 5-5-15, 6-16-15, 6-21-15, 6-24-15, 6-25-15, 7-1-15, 7-9-15, 7-14-15, 7-20-15, 8-1-15, 8-11-15, 8-14-15, 8-15-15, 8-26-15,

**Bear Lake Outlet Canal near Paris, ID (10059500)
Water Year 2015 (October 2014 to September 2015)**

Daily Mean Values

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
1	5	5	5	5	5	5	5	211	5	1580	1130	987	
2	5	5	5	5	5	5	5	548	5	1570	1110	799	
3	5	5	5	5	5	5	5	602	5	1560	1050	767	
4	5	5	5	5	5	5	5	614	5	1510	761	762	
5	5	5	5	5	5	5	5	570	5	1460	488	768	
6	5	5	5	5	5	5	5	473	5	1410	430	761	
7	5	5	5	5	5	5	5	304	5	1270	356	758	
8	5	5	5	5	5	5	5	62.6	5	1190	352	839	
9	5	5	5	5	5	5	5	5	5	1150	504	929	
10	5	5	5	5	5	5	5	5	5	1090	625	928	
11	5	5	5	5	5	5	5	5	5	1080	403	841	
12	5	5	5	5	5	5	5	5	204	1080	140	710	
13	5	5	5	5	5	5	5	5	470	1080	444	712	
14	5	5	5	5	5	5	5	5	484	1080	720	530	
15	5	5	5	5	5	5	5	5	517	1070	580	277	
16	5	5	5	5	5	5	5	5	609	916	579	184	
17	5	5	5	5	5	5	5	5	609	893	577	75.5	
18	5	5	5	5	5	5	5	5	609	896	654	35.8	
19	5	5	5	5	5	5	5	5	698	833	812	5	
20	5	5	5	5	5	5	5	5	796	755	886	5	
21	5	5	5	5	5	5	5	5	803	742	928	5	
22	5	5	5	5	5	5	5	5	871	680	968	5	
23	5	5	5	5	5	5	5	5	1050	839	964	5	
24	5	5	5	5	5	5	5	5	1280	1150	958	34.6	
25	5	5	5	5	5	5	5	5	1400	1250	1040	82.4	
26	5	5	5	5	5	5	5	5	1320	1240	1170	80.7	
27	5	5	5	5	5	5	5	5	1430	1070	1210	80.6	
28	5	5	5	5	5	5	5	5	1490	915	1170	79.6	
29	5	5	5	5	5	5	5	5	1550	907	1120	79.2	
30	5	5	5	5	5	5	5	5	1580	912	1120	78.1	
31	5	5	5	5	5	5	5	5	1020	1120			
Monthly Statistics													Yearly Stats
Total	155	150	155	155	140	155	150	3,500	17,825	34,198	24,369	12,204	93,155
Mean	5	5	5	5	5	5	5	113	594	1,100	786	407	253
Min	5	5	5	5	5	5	5	5	5	680	140	5	5
Max	5	5	5	5	5	5	5	614	1,580	1,580	1,210	987	1,580
Ins. Min	5	5	5	5	5	5	5	5	5	640	135	5	5
Ins. Max	5	5	5	5	5	5	5	625	1,590	1,590	1,220	1,130	1,590
Ac-ft	307	298	307	307	278	307	298	6,940	35,360	67,830	48,340	24,210	184,782

10092700 BEAR RIVER AT IDAHO-UTAH STATE LINE

LOCATION.--Lat 42°00'47", long 111°55'14" referenced to North American Datum of 1927, in NE ¼ NW ¼ NE ¼ sec.29, T.16 S., R.39 E., Franklin County, ID, Hydrologic Unit 16010202, on left bank 1,050 ft downstream from inlet canal to Cub River pumps, 1.1 mi downstream from Weston Creek, 1.8 mi upstream from Idaho-Utah State line, and 3.5 mi southeast of Weston.

PERIOD OF RECORD.--October 1970 to current year.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 4,420 ft above NGVD of 1929, from topographic map. Prior to September 10, 1982 at datum 12.00 ft higher. September 10, 1982 to September 30, 1985 at datum 10.0 ft higher.

REMARKS.-- Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by storage reservoirs, power developments, diversions for irrigation, and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,870 ft³/s, Jun 14, 1984, gage height, 19.20 ft, present datum; maximum gage height, 20.25 ft, Jun 21, 1971, present datum; minimum daily discharge, 24 ft³/s, May 16, 2004.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2014-10-01 to 2015-09-30 DAILY MEAN VALUES [e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	499	407	455	e380	388	386	389	251	1,230	1,090	581	839
2	497	404	462	e370	419	386	382	233	1,280	1,110	603	747
3	488	403	491	e390	463	391	379	246	1,160	1,120	646	807
4	488	399	491	e430	504	406	377	353	1,070	1,120	855	715
5	441	390	489	e480	564	561	367	516	1,040	1,090	912	599
6	436	392	487	e490	609	441	376	708	955	1,080	893	584
7	416	396	463	e470	634	444	383	676	1,000	1,030	846	560
8	378	396	451	459	700	464	378	871	935	1,200	814	576
9	406	393	455	497	727	780	381	869	932	1,150	972	650
10	434	392	462	494	731	401	405	814	884	1,010	919	698
11	428	390	479	480	778	393	449	742	759	882	875	780
12	426	390	466	485	695	392	645	585	583	886	768	732
13	444	355	475	487	524	371	609	580	490	898	682	719
14	448	340	488	479	762	396	412	535	397	898	679	642
15	430	423	459	472	627	437	383	505	331	892	637	641
16	432	448	459	473	604	447	394	559	491	843	596	796
17	427	357	416	485	550	450	397	845	509	835	487	845
18	409	380	396	462	521	458	388	917	480	846	450	772
19	406	418	394	464	528	461	393	712	577	844	464	600
20	415	437	404	461	522	461	323	731	572	814	393	486
21	430	426	460	429	490	463	284	957	553	652	511	420
22	444	439	535	410	471	481	422	1,100	544	634	648	338
23	404	438	464	401	451	464	443	1,180	600	575	782	340
24	383	439	455	405	451	467	447	1,210	834	577	796	327
25	395	428	460	408	447	439	504	1,180	951	673	794	307
26	390	414	409	419	400	424	610	1,240	961	748	985	300
27	388	425	401	429	393	419	563	1,270	993	778	911	298
28	381	439	372	450	389	390	330	1,440	992	927	974	297
29	390	401	310	446		380	314	1,450	1,010	861	949	274
30	411	407	e370	430		387	288	1,420	1,000	819	933	272
31	418		e400	418		398		1,470		590	860	
Total	13,180	12,170	13,780	13,850	15,340	13,640	12,410	26,160	24,110	27,470	23,210	16,960
Mean	425	406	444	447	548	440	414	844	804	886	749	565
Max	499	448	535	497	778	780	645	1470	1280	1200	985	845
Min	378	340	310	370	388	371	284	233	331	575	393	272
Ac-ft	26,150	24,130	27,330	27,480	30,430	27,050	24,620	51,900	47,830	54,490	46,050	33,640

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	806	859	869	847	852	1,049	1,266	1,321	1,222	955	881	807
Max	2,849	2,983	2,552	1,904	2,556	3,264	3,594	3,968	4,263	3,442	2,416	2,545
(WY)	(1984)	(1984)	(1985)	(1984)	(1986)	(1986)	(1986)	(1986)	(1986)	(1983)	(1984)	(1986)
Min	224	298	310	269	296	351	351	158	301	368	461	192
(WY)	(2004)	(1993)	(1982)	(2004)	(2002)	(1991)	(2003)	(2003)	(2004)	(2006)	(1993)	(1992)

Figure 2015.17 (cont.)

10109001 COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF LOGAN RIVER ABOVE STATE DAM AND LOGAN, HYDE PARK AND SMITHFIELD CANAL NEAR LOGAN, UTAH

REVISED RECORDS.--WDR UT-04-1: Discharge.

**DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR 2014-10-01 to 2015-09-30
DAILY MEAN VALUES**

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	148	118	105	74	87	87	141	320	563	259	175	135
2	140	117	104	83	87	85	143	333	582	253	173	133
3	136	116	103	87	97	86	139	343	583	248	176	133
4	135	115	103	93	131	84	134	369	584	245	179	131
5	133	114	103	98	114	82	131	367	558	249	172	133
6	130	114	102	96	108	82	130	382	530	245	170	131
7	129	116	101	94	106	83	129	384	498	240	168	131
8	128	108	100	94	109	84	129	380	478	241	169	129
9	128	110	98	94	112	85	123	368	478	240	166	128
10	126	110	99	94	111	84	121	354	472	232	165	128
11	126	109	99	95	104	85	125	338	479	227	162	127
12	132	107	99	97	102	88	133	326	466	223	162	126
13	142	96	101	96	101	90	130	323	450	219	157	126
14	134	116	101	93	102	94	135	337	428	217	155	126
15	122	112	98	89	101	97	142	354	402	215	155	133
16	121	102	98	90	100	99	145	360	383	213	153	140
17	124	100	98	89	97	108	143	354	365	211	151	136
18	124	100	97	90	95	113	147	337	352	212	149	129
19	123	109	96	91	94	111	161	410	341	203	147	127
20	121	110	98	89	95	112	177	417	327	204	147	123
21	122	107	111	84	95	115	207	412	316	202	146	121
22	121	115	115	81	94	117	229	425	305	193	145	119
23	121	110	102	86	89	121	250	469	295	198	143	118
24	120	107	103	85	90	123	253	499	293	193	141	118
25	121	106	104	90	90	119	262	496	293	191	140	118
26	123	111	99	88	89	114	252	502	284	189	142	118
27	122	110	94	89	89	111	232	501	282	187	142	118
28	119	108	98	92	89	113	231	514	275	186	140	117
29	119	107	94	90		121	246	506	267	179	137	117
30	116	107	72	89		125	282	499	263	179	137	117
31	118		71	88		133		527		176	136	
Total	3,924	3,287	3,066	2,788	2,778	3,151	5,202	12,509	12,190	6,669	4,800	3,786
Mean	127	110	98.9	89.9	99.2	102	173	403	406	215	155	126
Max	148	118	115	98	131	133	282	527	584	259	179	140
Min	116	96	71	74	87	82	121	320	263	176	136	117
Ac-ft	7,783	6,520	6,081	5,530	5,510	6,250	10,320	24,800	24,180	13,230	9,521	7,509

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	147	130	116	109	106	122	250	589	638	337	209	168
Max	262	221	187	165	205	369	629	1,186	1,465	1,118	477	312
(WY)	(2012)	(2012)	(1984)	(2012)	(1986)	(1986)	(1986)	(1936)	(1986)	(2011)	(2011)	(2011)
Min	74.2	71.9	69.0	63.1	61.6	80.3	111	163	141	103	86.4	79.9
(WY)	(1935)	(1993)	(1993)	(1993)	(1993)	(1942)	(1991)	(1977)	(1934)	(1934)	(1992)	(1934)

Figure 2015.17 (cont.)

10126000 BEAR RIVER NEAR CORINNE, UT

LOCATION.--Lat 41°34'35", long 112°06'00" referenced to North American Datum of 1927, in NE ¼ SE ¼ NE ¼ sec.30, T.10 N., R.2 W., Box Elder County, UT, Hydrologic Unit 16010204, on right bank 1.2 mi downstream from Salt Creek, 2.0 mi northeast of Corinne, and 2.8 mi downstream from Malad River.

DRAINAGE AREA.--7,029 mi².

PERIOD OF RECORD.--October 1949 to September 1957, October 1963 to current year.

REVISED RECORDS.--WRD UT-74-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 4,204.6 ft above NGVD of 1929, unadjusted. Auxiliary nonrecording gage 7,800 ft downstream July 27, 1950 to November 21, 1955.

REMARKS.-- Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by Cutler Dam many miles upstream of gage, power development, diversions for irrigation, and return flow from irrigated areas and backwater from Bear River Bird Refuge about 5 miles downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,770 ft³/s, May 19, 1984, gage height, 17.50 ft; minimum daily discharge, 23 ft³/s, Jul 30, 2004.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2014-10-01 to 2015-09-30 DAILY MEAN VALUES [e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	767	784	785	e70	737	718	909	605	2,600	130	81	217
2	721	807	785	e50	843	743	634	261	2,480	132	81	221
3	662	783	806	e50	909	730	1,070	118	2,370	138	89	215
4	567	786	824	e50	745	823	1,110	70	2,340	136	104	211
5	574	775	841	e50	872	825	757	66	2,230	139	105	205
6	588	773	849	e90	1,160	705	798	66	1,980	149	100	198
7	585	775	846	e600	1,200	1,010	957	81	1,740	162	108	212
8	552	768	841	e970	1,190	770	1,040	278	1,670	163	132	210
9	520	766	826	e980	1,090	868	1,080	987	1,360	164	154	219
10	508	761	839	e940	1,140	832	836	1,370	1,290	159	184	226
11	496	750	843	e1,000	1,190	909	724	1,110	1,360	522	181	225
12	498	744	869	1,080	1,220	1,110	736	964	1,420	683	180	232
13	478	701	888	1,010	1,240	877	922	723	1,090	709	292	246
14	449	680	881	970	1,240	650	1,290	837	690	546	274	260
15	471	763	889	1,040	1,160	544	990	549	575	309	208	277
16	524	728	892	1,040	1,070	789	847	448	432	165	194	311
17	648	770	874	1,060	1,010	928	897	963	264	114	156	549
18	835	889	862	999	1,010	879	1,040	1,260	186	104	125	1,100
19	748	881	834	918	989	877	1,040	1,410	156	102	117	1,040
20	549	860	807	906	856	1,040	983	1,800	137	91	108	854
21	995	852	829	915	831	1,150	983	1,970	130	236	101	513
22	1,340	837	858	919	952	1,100	976	1,950	127	566	84	515
23	1,120	888	904	942	1,090	1,010	820	1,880	120	408	82	699
24	1,340	916	990	895	1,100	826	701	2,300	120	234	87	452
25	1,390	904	951	636	676	941	844	2,330	119	153	87	442
26	1,400	858	902	471	667	1,230	1,010	2,460	123	124	99	448
27	1,140	841	840	829	805	1,200	1,160	2,450	124	112	117	401
28	828	827	e780	930	803	999	1,380	2,430	125	102	130	384
29	772	819	e790	941		909	1,280	2,640	125	93	148	347
30	764	821	e520	936		891	984	2,710	121	89	169	257
31	767		e100	923		923		2,600		80	187	
Total	23,600	24,110	25,350	23,210	27,789	27,810	28,799	39,690	27,600	7,014	4,264	11,690
Mean	761	804	818	749	993	897	960	1,280	920	226	138	390
Max	1400	916	990	1080	1240	1230	1380	2710	2600	709	292	1100
Min	449	680	100	50	667	544	634	66	119	80	81	198
Ac-ft	46,800	47,820	50,270	46,040	55,130	55,150	57,120	78,720	54,750	13,910	8,458	23,180

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2015, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1,247	1,496	1,569	1,685	1,717	2,203	2,697	2,723	2,062	650	553	814
Max	4,240	4,471	4,414	3,639	5,966	6,041	7,258	9,598	9,201	4,186	3,045	3,423
(WY)	(1984)	(1985)	(1984)	(1984)	(1986)	(1986)	(1985)	(1984)	(1984)	(1983)	(1983)	(1984)
Min	95.6	621	535	620	723	897	638	71.8	77.6	40.4	46.7	62.2
(WY)	(1993)	(1995)	(1995)	(1993)	(1993)	(2015)	(1992)	(1992)	(1992)	(2003)	(2004)	(1992)

2016 WATER SUPPLY AND DISTRIBUTION REPORT

2016 Water Supply and Distribution Report

OVERVIEW

The 2016 water year was about normal in the Upper Division and below normal in the Central and Lower Divisions. It lacked the meaningful summer rain of the two prior years. Carry-over storage coming from the prior year was below normal. A water emergency, as defined by the Compact, was in place during half of the irrigation season in the Central Division. There was not a request for interstate regulation in the other two Bear River divisions.

WATER SUPPLY

Three stream gages, one in each division of the river, have been used by the Commission as indicator gages of the relative supply available for each of the divisions of the river (see Stream Gaging Program section in the Overview chapter). The Utah-Wyoming State Line and Smith's Fork gages measure a major portion of the stream flow in the Upper and Central Divisions, respectively. The Logan River is a major tributary to the Bear River in Cache Valley, which is in the Lower Division. Specific discharges, as measured by the USGS for the three gages during 2016, compared with the long-term averages, are summarized in Figure 2016.1 and are graphically illustrated in Figures 2016.2 through 2016.4 on the subsequent pages.

Figure 2016.1 shows a summary of the volumetric discharge for each of these gages for the water year. As the water supply available during the irrigation season is most critical for filling the natural flow rights, the discharge as measured at these gages during the irrigation season is also shown in Figure 2016.1.

Figures 2016.2 through 2016.4 show hydrographs for each of these three gaging stations. On each hydrograph, the mean daily flow during the irrigation season is plotted against the average of the mean daily flows for the period 1943 through 2016. The area between the 2016 hydrographs and the mean hydrographs represents the difference in volume of water discharged during 2016 versus the long-term average. This volumetric difference is illustrated by the bar charts shown on each of the figures.

As can be seen in Figure 2016.1, the annual discharge for the Upper Division (Utah-Wyoming State Line gage) was 99 percent of the long-term average, and streamflow on Smith's Fork and the Logan River were 90 and 83 percent, respectively. More important to the natural flow diversions than the streamflow during the water year is the streamflow during the irrigation season of May through September. During this period, the water supply was 102 percent (Upper Division), 88 percent (Central Division), and 81 percent

2016 Water Supply Summary by Division

2016 WATER YEAR

(Discharge in Acre-feet)

GAGE	AVERAGE (1943-16)	2016	PERCENT
Upper Division (UT-WY State Line)	138,800	137,300	99%
Central Division (Smith's Fork)	136,300	122,900	90%
Lower Division (Logan River)	180,200	148,800	83%

2016 IRRIGATION SEASON

MAY - SEPTEMBER

(Discharge in Acre-feet)

GAGE	AVERAGE (1943-16)	2016	PERCENT
Upper Division (UT-WY State Line)	114,500	116,400	102%
Central Division (Smith's Fork)	101,400	88,800	88%
Lower Division (Logan River)	120,600	98,200	81%

Figure 2016.1

(Lower Division). One item of interest to note is that the actual streamflows realized during the irrigation season shown above were about 20 percent above in the Upper Division, 7 percent below in the Central Division and 15 percent below in the Lower Division from their April 1 forecasted amounts.

A closer look at the three hydrographs (Figures 2016.2, 2016.3 and 2016.4) is also insightful when one is trying to understand the natural water supply in the spring and summer of 2016. The Upper Division gage (Figure 2016.2) indicates runoff was about normal in May and more than 20% above normal in early to mid-June, but then fell back to below normal through the end of June and July. The Central Division gage (Figure 2016.3) shows runoff just above normal during May and then below normal for the remainder of the irrigation season. The Lower Division indicator gage (Figure 2016.4) shows a runoff pattern that is pretty much consistently 15-20% below normal throughout the irrigation season. In summary, during the 2016 irrigation season the streamflow was about normal in the Upper Division and fell off down river to about 20% below normal in the Lower Division. It should be noted that, though not necessarily shown on the streamflow hydrographs, above average rains in May forestalled the irrigation demand, but this was followed by dramatically drier months of June, July and August before September rains helped supply some of the irrigation demands.

2016 - Upper Division Water Supply

Flow at Utah-Wyoming State Line Gage

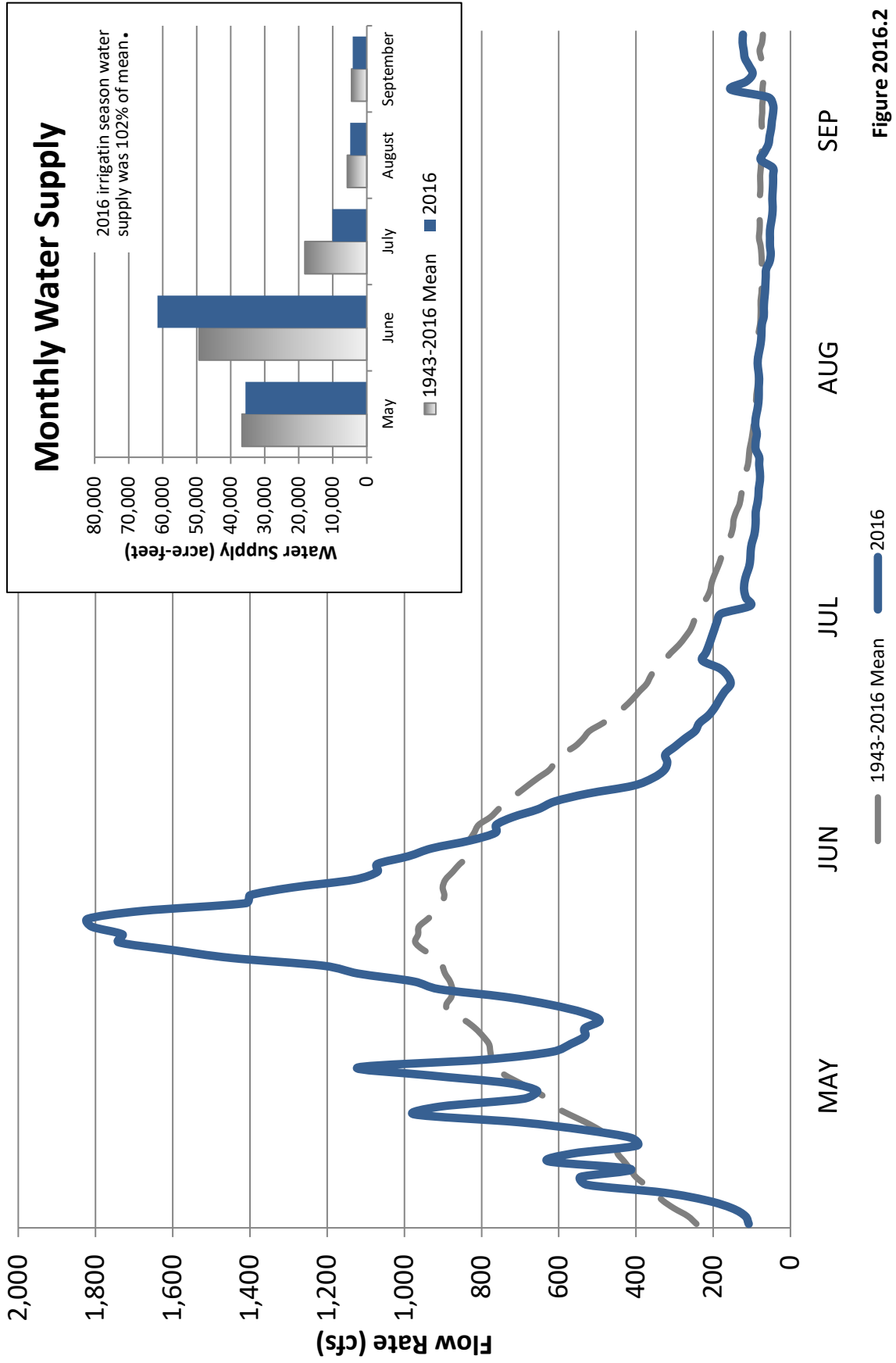


Figure 2016.2

2016 - Central Division Water Supply

Flow at Smiths Fork near Border, Wyoming Gage

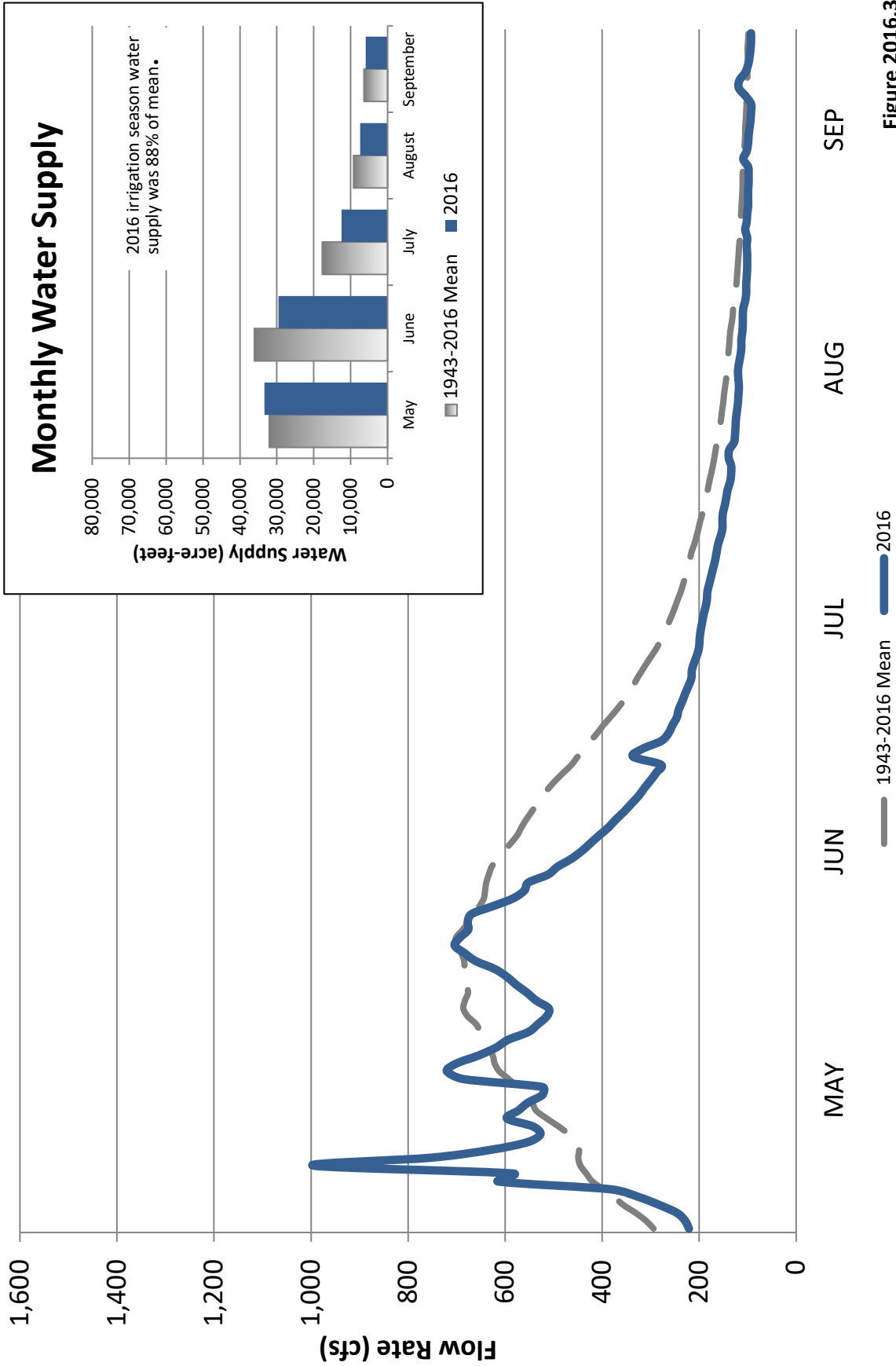


Figure 2016.3

2016 - Lower Division Water Supply Flow at Logan River Combined Gage

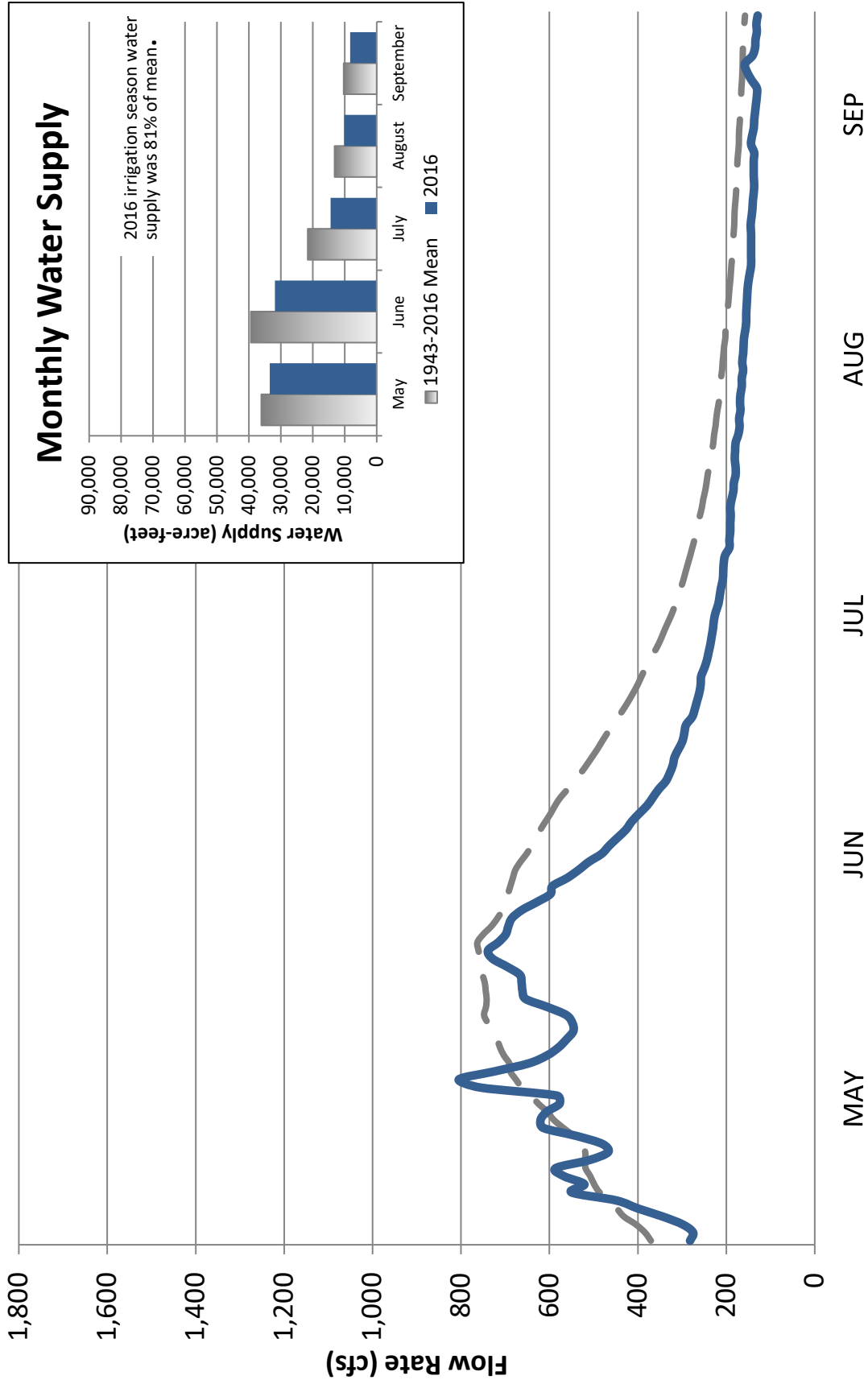


Figure 2016.4

STORAGE

Storage supplies along the Bear River have a notable impact on the water resources available for irrigation each year. Despite the meaningful rains late in the irrigation season in 2015 which reduced storage demand, because of the low stream flows in 2015 and the two prior water years, storage supplies in 2016 started below average in carryover storage. Woodruff Narrows Reservoir is the largest reservoir in the Upper Division. However, Whitney, Sulphur Creek, and Woodruff Creek Reservoirs also provide for notable amounts of winter storage.

Paragraph B of Article VI of the Amended Compact, which allows for additional storage rights above Stewart Dam, also has a provision which restricts storage to occur if the water surface elevation at Bear Lake is below an elevation of 5911.0 (UP&L Datum). About half of the storage which is assigned to Woodruff Narrows Reservoir, from both the States of Utah and Wyoming, falls under this provision of the Amended Compact. Though Bear Lake had dropped significantly from its high level in 2011, it was still a little above 5911 and so this storage restriction did not apply during the 2016 storage season.

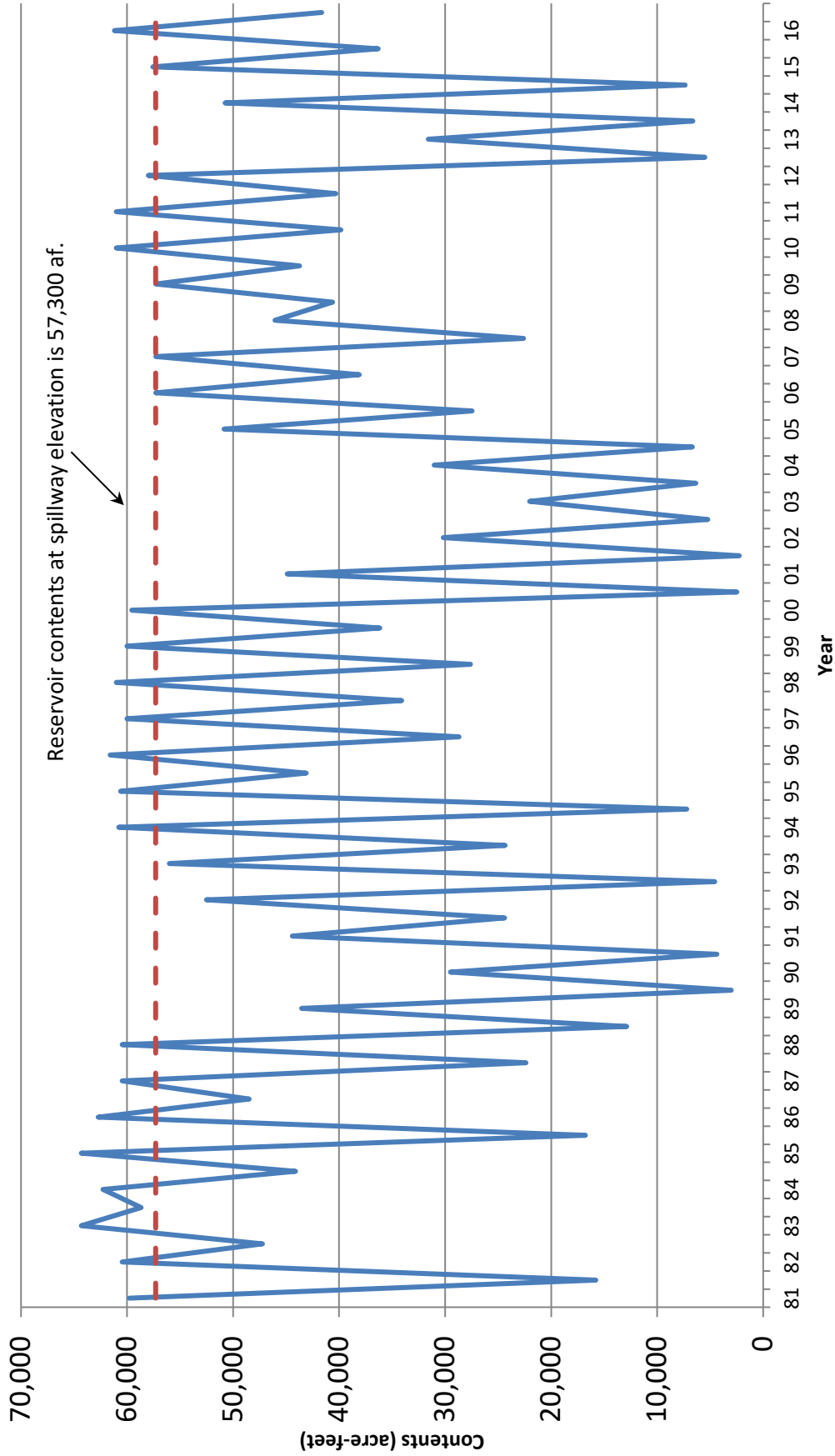
Prior to 1997 a gage was maintained, with Commission funding, by the USGS on Woodruff Narrows Reservoir. The gage included a recorder which allowed for preservation of daily values. Since this time, periodic measurements have been kept by the Woodruff Narrows Reservoir Company in coordination with the Wyoming State Engineer's Office. In 2013 a real-time water level gage was installed at Woodruff Narrows Reservoir. Figure 2016.5 shows the maximum and minimum contents for the Woodruff Narrows Reservoir since its enlargement in 1980.

The spillway crest of Woodruff Narrows Dam is at an elevation of 6454.5 feet and when the water level is at this elevation, the content is 57,300 acre-feet. Hence, when the reservoir is spilling, the contents above this amount represent uncontrolled storage as this storage is only temporary and cannot be controlled by the reservoir company. Generally, during spill periods, the reservoir company is often releasing significant flows through its outlet works as well. Though the total contents are uncontrolled, the proportion of water discharging from the reservoir through the outlet works versus over the spillway is somewhat under the control of the reservoir company. Both discharge to the Bear River below the dam but above the stream gage, and it makes no difference to the total discharge measured into the Bear River. Because of the improved water year in 2015, Woodruff Narrows was able to just fill and then with reduced draw carried over 36,314 acre-feet into the 2016 storage season. With normal streamflow in 2016 the reservoir easily filled and spilled in 2016 reaching a high content of 61,192 acre-feet on June 15 before being drafted for summer irrigation uses. It ended the season with a meaningful carryover storage amount of 41,642 acre-feet.

There is no significant storage in the Central Division.

The largest and most significant storage reservoir in the Lower Division, and in the entire watershed, is Bear Lake, which is at the very top of the Lower Division. Bear Lake is operated as a storage reservoir by PacifiCorp. The Compact regulates various aspects of how PacifiCorp can manage the storage of water within Bear Lake. Figure 2016.6 summarizes the 2016 Bear Lake hydrologic information and significant operational events.

Woodruff Narrows Reservoir Annual Maximum and Minimum Contents



Note: Through the 1996 water year a gage with a recorder was maintained by the USGS on Woodruff Narrows Reservoir. From then until 2013 measurements are based on spot observations and estimates by the Woodruff Narrows Reservoir Company and the Wyoming State Engineer's Office. Since 2013, a gage and recorder has been maintained by the Wyoming State Engineer's Office. Contents above 57,300 af represent uncontrolled storage.

Figure 2016.5

**Summary of Significant
2016 Bear Lake
Hydrologic Information and Operational Events**

<u>Date</u>	<u>Hydrologic Information/Event</u>	<u>Contents (% of Full) Discharge (% of Normal)</u>
10-01-15	Bear Lake Beginning Elevation — 5911.55 ft	592,476 af (42%)
12-09-15	Bear Lake Low Elevation ¹ — 5911.18 ft	568,444 af (40%)
	Rainbow Inlet Canal Discharge	193,000 af (74%)
	Bear River Discharge Below Stewart Dam	2,300 af
	Bear Lake Net Runoff (Computed Total Inflow less lake Evaporation)	188,000 af (58%)
06-24-16	Bear Lake High Elevation — 5914.44 ft	783,421 af (55%)
	Outlet Canal Releases: 6/2 – 9/23	216,000 af
07-01-16	Outlet Canal Maximum Release – 1,596 cfs	
	Bear Lake Storage Release ²	166,000 af
09-30-16	Bear Lake Ending Elevation — 5910.68 ft	536,093 af (38%)
	Bear Lake Settlement Agreement “System Loss” Volume ³	12,900 af

¹ Low contents prior to start of storage (occurred in previous water year).

² Net irrigation storage release from Bear Lake, subtracting Rainbow inflow and the decreed adjustment for the natural yield of the Bear Lake and Mud Lake area. **Includes system loss volume.**

³ Due to uncontrolled flow from (welcome) rain events. Whenever water flows below Cutler Dam during the irrigation season, any storage water in the system at Cutler is the first water out. Natural flow goes to irrigators.

Figure 2016.6

Figure 2016.6 provides much information as to the water stored in Bear Lake in 2016. Some of this information will be discussed in the Lower Division section of this report. Because of the extremely high flows into the lake in 2011, despite a successive drier than normal period, Bear Lake began the storage season with a carry-over storage of about 42%, even though it was heavily drafted during the irrigation seasons since 2011. PacifiCorp operated Bear Lake in storage mode throughout 2016.

Figure 2016.7 is a graph which shows the annual maximum and minimum elevations of Bear Lake since 1915. As described above, the beginning storage elevation (or prior year minimum) occurred on December 9, 2016. One can see from Figure 2016.7 that storage in the lake increased the elevation by 2.9 feet during the storage season (incidentally to exactly the same elevation as in 2015). Storage usage during the irrigation season dropped the elevation nearly 4 feet, ending the year about half a foot below where it started the year. Figure 2016.8 is an area plot showing the daily contents in Bear Lake over the past ten years. This hydrograph and Figure 2016.7 show that the very significant drop in Bear Lake water levels in the early 2000s was followed by a relatively stable, but low water period, which was then followed by historic gains in lake elevation in 2011 and then a significant drop in 2012 and 2013, almost no change in 2014, and a small drop in 2015 and again in 2016. By the end of the 2016 water year, Bear Lake dropped to just below an elevation of

5911 which then triggers upstream storage restrictions. However, it is expected that the lake will rise above this restriction during the 2017 storage period and, therefore, it will probably not have an actual impact to upstream storage.

Bear Lake has such a large storage capacity compared to average annual use that it greatly buffers the potential shortages in the Lower Division over a period of below-normal years, but for the same reason, recovery from a depleted reservoir can be slow.

BEAR LAKE ELEVATION

Annual Maximum & Minimum Elevations

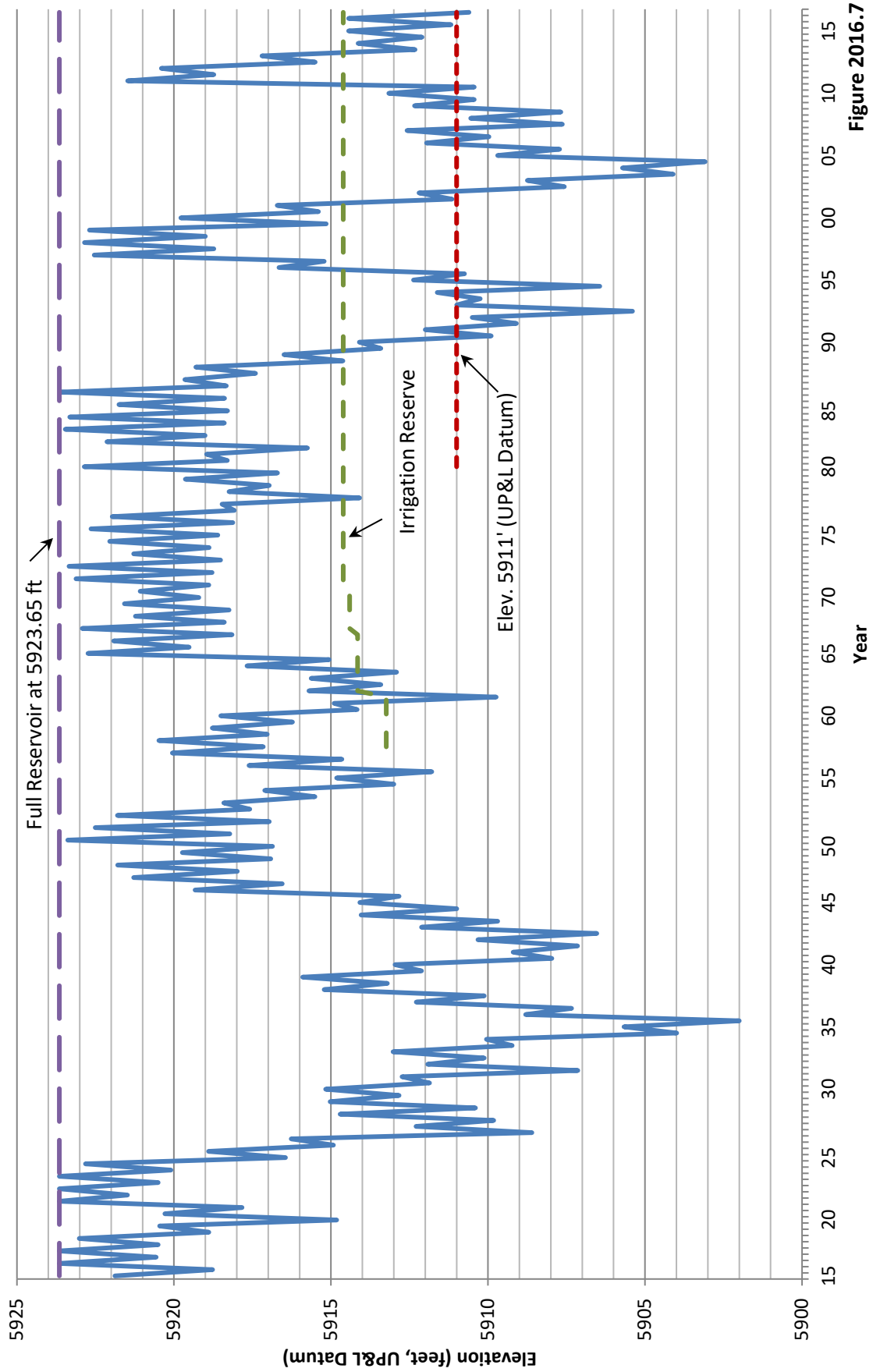


Figure 2016.7

BEAR LAKE CONTENTS Water Years 2007 - 2016

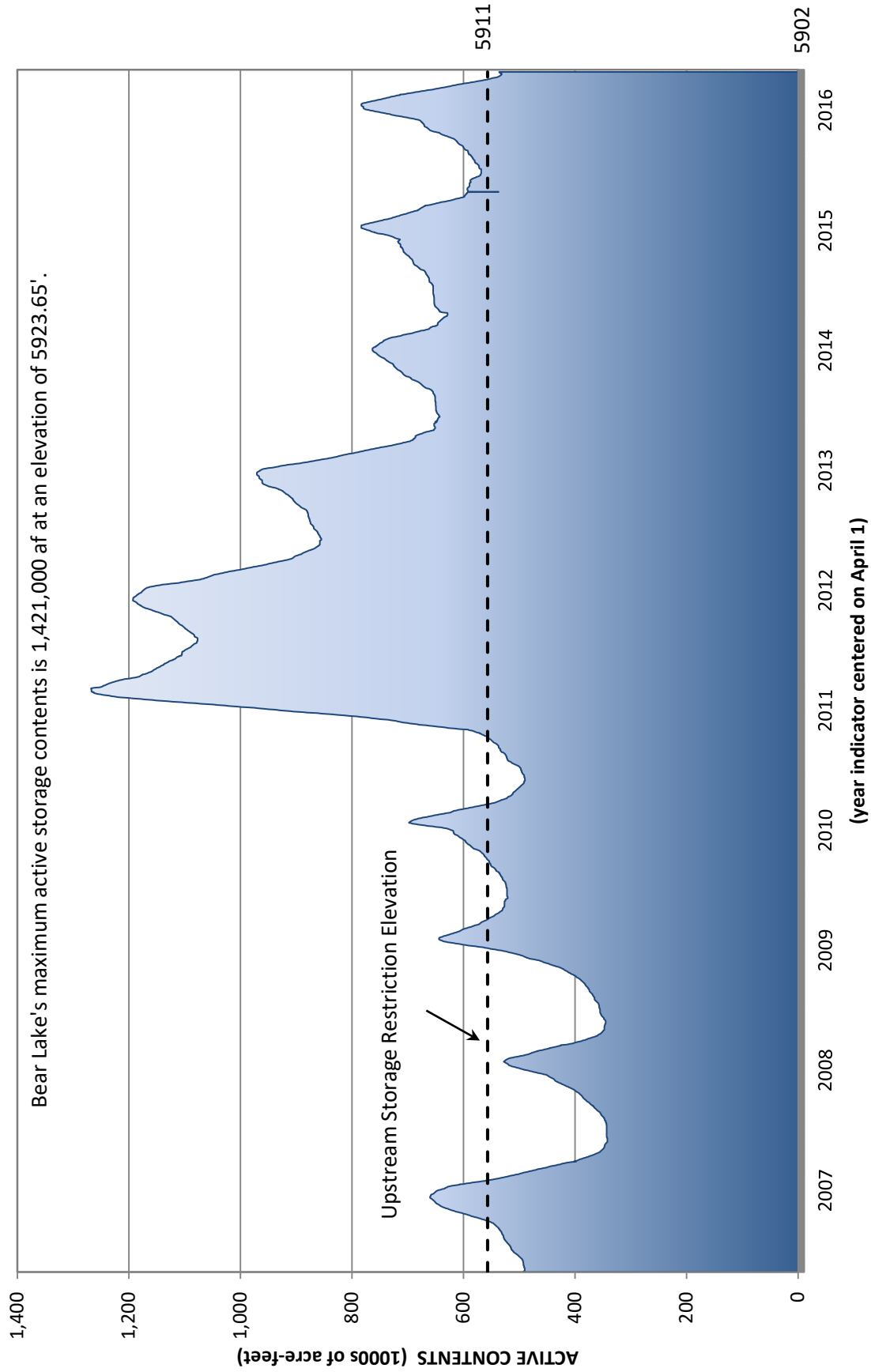


Figure 2016.8

STREAMFLOW DISTRIBUTION

General

The water administration in 2016 in the three divisions remained similar to prior years. In 2016 Levi Walker became the hydrographer in the Lower Wyoming Section of the Upper Division and the Wyoming Section of the Central Division. There were no other changes to the River Commissioners/ Watermasters in the other sections from the previous year. Don Barnett continued to serve as Engineer-Manager of the Bear River Commission. Each River Commissioner/Watermaster works under the direction of his State Engineer's office, but coordinates with the Commission's Engineer-Manager with regard to total diversions in each of the various sections as defined by the Compact.

During the 2016 irrigation season, the following River Commissioners/Watermasters measured water in their sections of the river:

<u>DIVISION</u>	<u>SECTION</u>	<u>RIVER COMMISSIONER/ WATERMASTER</u>
Upper	Upper Utah	Travis McInnis
	Upper Wyoming	Travis McInnis
	Lower Utah	Ron Hoffman
	Lower Wyoming	Levi Walker
Central	Wyoming	Levi Walker
	Idaho	Josh Hanks
Lower	Idaho	Josh Hanks
	Utah	Jim Watterson

Snow survey information early in 2016 pointed to a below-normal (approximately 70% - 90%) anticipated runoff. Good rains in May forestalled the irrigation demand and aided in a productive runoff. This was followed by extremely dry months of June, July and August. A water emergency was declared in the Central Division and administration occurred pursuant to the Compact.

Upper Division

The Upper Division divertible flow, as defined by the Compact, consists of a summation of the diversions of all of the canals in the four sections, plus waters bypassing Pixley Dam, less that portion of water diverted by the canals which is attributable to storage releases from Whitney, Sulphur Creek, Woodruff Narrows and Grassy Lake Reservoirs. The Compact provides that when the total divertible flow is less than 1250 cfs, a water emergency exists. Though the stream flow in the Upper Division during the irrigation season was below this threshold until mid-May, and then beginning again from late June until the end of the

irrigation season, there was no request for interstate regulation. In recent years, users in the Upper Division have at times opted for the flexibility available through unofficial general cooperation and sharing of water rather than direct Compact administration.

During years when a water emergency has been declared, the regulation of the river is based on the weekly diversions as called in by the respective River Commissioners. At the end of each year, these River Commissioners submit to their respective State Engineers a complete written report of water deliveries. It is this information which is presented in the graphs and tables on the following pages and not the weekly totals called in during times of regulation. The weekly call-in totals, which are received during the irrigation season, differ slightly from the year-end data because of timing of call-ins and call-outs, shifts on canal ratings and other factors.

An early in-state call for regulation for the Wyoming canals below Woodruff Narrows Reservoir triggered regulation upstream of the reservoir. Wyoming continued to regulate for the remainder of the irrigation season although there was no official compact regulation between Utah and Wyoming. Figures 2016.9 and 2016.10 show the divertible flow and natural flow diversions in the Upper Wyoming and Lower Utah Sections, respectively. Also shown on the graphs (magenta line) is what would have been the Compact allocation had a water emergency been imposed. As can be seen in Figure 2016.10, during much of the irrigation season, diversion in the Lower Utah Section was below the allocation. However, this is due to the fact that the water was getting past the Lower Utah Section to the Lower Wyoming Section and not due to over diversion in the Upper Wyoming Section as is confirmed by Figure 2016.9. Figure 2016.11 is a tabulation by month of canal diversions and shows the calculation of divertible flow (less storage release) and allocations to the respective sections, pursuant to the Compact, had a water emergency been declared. The values shown for each canal and pump in this figure represent total diversion (including both natural flow and storage), and then the storage water is subtracted out of the section totals before computing the total divertible flow.

2016 - Upper Division

Upper Wyoming Section Diversions vs Allocation

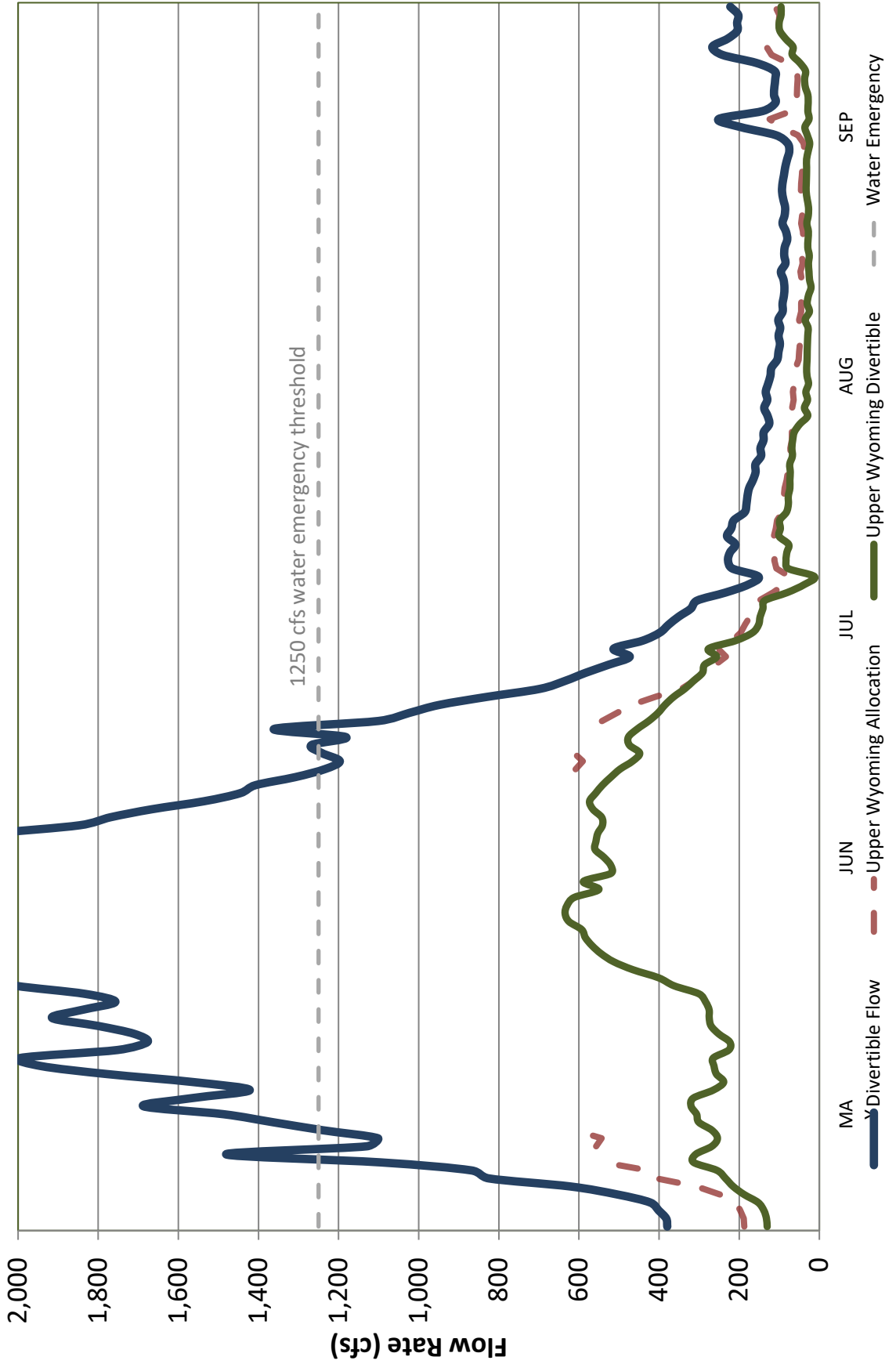


Figure 2016.9

2016 - Upper Division

Lower Utah Section Diversions vs Allocation

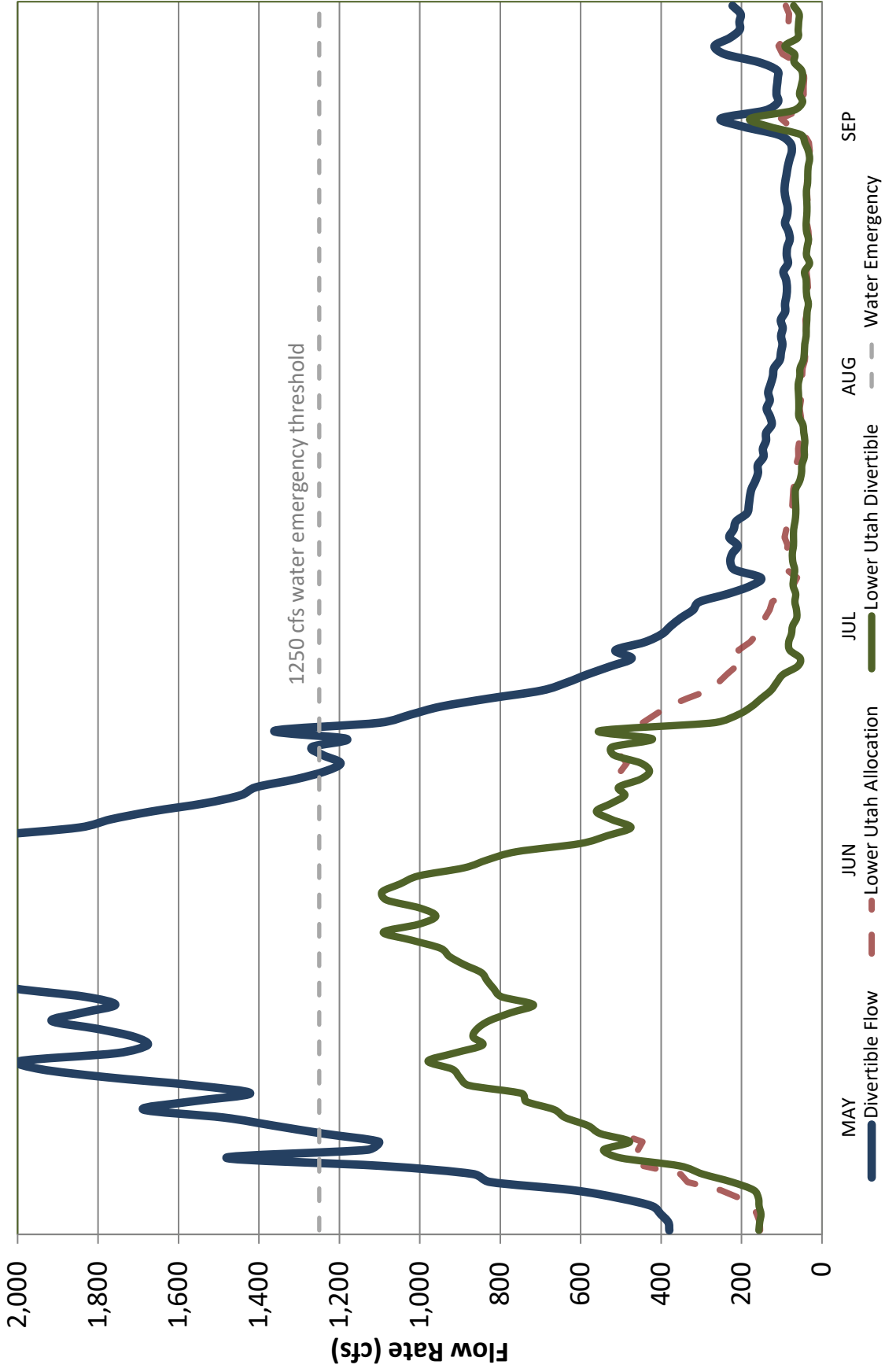


Figure 2016.10

DAILY DISCHARGE IN CFS OF BEAR RIVER CANALS WITH COMPACT ALLOCATIONS IN THE UPPER DIVISION

	June																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
UPPER UTAH SECTION																														
Hovarka (E Fk)	15	15	13	2	4	4	9	15	15	15	14	14	14	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12	12	12
Hatch (W Fk)	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4
UPPER WYOMING SECTION																														
Hilliard East Fork (E Fk)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	30	30	30	30	30	30	30	30
Lannon & Lone Mtn	10	13	18	13	17	20	19	17	16	16	15	15	16	16	15	16	19	18	19	22	22	22	22	21	20	20	20	20	18	
Hilliard West Side	6	7	16	25	25	24	23	23	18	18	17	17	16	15	16	26	18	12	12	12	12	21	40	41	42	42	40	38	39	
Bear (Bear R)	18	31	55	39	39	38	38	38	40	42	39	38	43	39	38	58	90	87	83	77	86	95	94	91	88	82	76	70	68	78
Tropic	0	0	0	1	3	3	4	5	5	4	4	4	3	2	2	2	4	5	4	2	3	4	4	4	3	3	2	2	1	2
Kreider Domestic Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Danielson	4	12	5	5	5	5	5	5	4	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3
Crown & Pine Grove	0	1	0	0	3	12	11	10	18	18	18	18	18	18	18	18	18	18	17	22	24	23	22	19	17	17	19	17	17	17
McGraw	11	17	24	23	24	24	22	22	21	20	19	18	17	16	15	18	27	25	24	23	22	20	19	18	16	14	13	14	13	14
Lewis (D4)	4	4	4	4	4	5	6	5	4	3	3	3	3	2	2	2	2	2	2	2	2	2	4	3	4	5	4	2	2	2
Homer	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Lewis and Blanchard	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Myers No. 2	3	3	4	5	6	6	6	6	6	6	6	5	5	4	4	4	4	4	4	4	4	4	4	4	3	3	2	1	1	1
Hare	0	3	3	3	3	3	3	3	7	7	7	7	7	7	7	7	7	7	7	7	7	7	3	3	3	3	3	3	3	3
Koffman	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	0	0	0	1
Knoeder	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	4	4	4	4	4	4	4	4
Myers No. 1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	2	2	2	2	2	2
Myers Irr	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	7	7	6	6	3	4	4	4	3	2	6	6	6	6
Evanson Pipeline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10	10	10	10	10	12	12	12	12	12	12	12	12	12	12
Booth	15	16	15	25	24	22	20	20	18	15	13	11	12	14	14	13	12	11	24	27	18	21	21	18	15	10	8	5	6	20
Anel Irr	13	21	22	25	27	28	28	28	27	25	23	22	21	20	20	20	20	20	20	20	20	20	20	20	19	19	19	18	18	18
Cornelson	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Ev Water Supply (and Anderson)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1
Knight No. 2 (and No. 1)	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	1	4	4	4	4	5	4	4	4	4
State Hospital Ditch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Evanson Water	9	11	12	14	17	18	18	18	18	19	21	22	22	22	22	21	21	21	21	21	21	21	20	21	20	21	20	21	20	19
Wilson Irr	3	3	3	3	3	1	1	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	3	3	3
Faulkner	7	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Rocky Mtn & Blyth (and Crompton)	3	7	10	11	12	13	12	12	12	11	11	11	11	11	11	11	10	10	10	10	10	10	10	9	9	8	8	8	8	8
B.E.A.R. Project PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fife Irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Johnston & Narramore	1	1	1	1	1	1	1	8	8	8	8	8	8	8	8	8	8	8	8	8	4	4	4	4	4	4	4	4	4	4
Sim's Creek Slough Diversion	11	12	12	12	10	10	10	10	10	10	9	9	10	12	11	11	10	10	10	10	10	9	9	9	9	9	11	11	11	11
John Sims	17	17	20	37	35	31	28	25	23	22	21	21	21	20	18	18	17	16	15	15	16	16	15	15	15	15	15	14	13	13
Michael Sims	3	3	3	3	3	3	3	8	8	8	8	8	8	8	8	8	8	11	11	11	11	11	11	11	11	11	11	11	11	11
S. P.	6	7	7	8	8	8	8	8	8	8	8	8	8	2	2	2	2	2	2	4	6	6	6	6	5	4	4	4	4	4
Almy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2
Sims, Blight & Turner	1	1	1	1	1	1	1	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	5	5	5	5	5	5	5	5
Bowns	2	2	2	2	2	2	2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Nixon West Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turner	3	3	3	3	3	3	7	7	7	7	7	7	7	7	7	7	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Chapman (Headgate)	148	153	151	157	161	169	170	170	168	170	171	169	169	165	159	158	148	138	128	119	112	106	100	95	91	87	83	80	76	75
Chapman (Stateline, incl'd above)	129	130	129	132	140	141	150	142	142	145	141	133	123	113	101	90	77	69	61	58	53	50	48	54	67	54	43	37	41	57
Morris Bros Irr (Lower)	0	0	0	0	1	5	11	12	16	16	15	14	12	10	7	5	3	2	2	1	1	0	0	1	2	0	0	0	0	0
Bowns & Bruce	7	7	12	12	12	12	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	5	5	5	5	5	5	5	5
Olson No. 1 Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tunnel	18	20	19	20	20	20	22	27	26	25	23	23	21	18	16	18	20	18	18	24	23	20	18	16	14	12	5	0	0	0
Francis-Lee	24	25	25	26	27	29	32	32	33	33	32	30	29	28	28	26	25	24	23	23	21	22	23	22	23	22	22	21	21	21
Bear River Canal	48	50	51	53	56	55	58	60	61	61	60	57	55	54	50	47	45	44	44	44	43	42	43	43	43	43	43	42	42	42
TOTAL UPPER WY DIV.	403	467	517	548	571	588	598	629	638	633	617	604	601	574	567	578	597	595	589	577	578	597	606	592	605	553	530	498	480	504
Whitney Storage																														
Sulphur Creek Storage	0	2	3	3	3	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LOWER UTAH																														
Neville	5	6	6	6	6	7	7	7	7	6	6	6	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Booth	13	14	14	14	14	14	14	14	20	28	28	26	25	24	22	20	19	18	17	17	17	16	15	15	16	16	16	16	16	
Rees Land & Livestock	36	32	33	34	34	36	37	41	46	47	50	50	50	50	51	50	49	49	49	49	49	49	49	50	50	50	50	50	50	
Crawford-Thompson	149	141	142	143	147	158	145	131	143	150	150	143	133																	

DAILY DISCHARGE IN CFS OF BEAR RIVER CANALS WITH COMPACT ALLOCATIONS IN THE UPPER DIVISION

	July																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
UPPER UTAH SECTION																															
Hovarka (E Fk)	12	12	12	12	12	12	11	11	11	10	8	5	5	5	5	5	5	5	3	3	5	5	5	5	5	5	5	4	4	4	4
Hatch (W Fk)	4	4	4	4	3	3	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UPPER WYOMING SECTION																															
Hilliard East Fork (E Fk)	30	30	30	30	28	25	25	25	25	26	28	28	28	28	28	27	27	16	4	0	0	0	0	0	0	0	0	0	0	0	0
Lannon & Lone Mtn	18	17	18	18	18	17	17	17	17	17	17	17	17	17	17	17	16	15	16	17	17	17	16	16	16	17	8	0	0	0	
Hilliard West Side	39	39	39	39	38	38	36	35	33	33	33	33	33	32	30	27	27	27	9	1	1	1	1	1	1	1	0	0	0	0	
Bear (Bear R)	85	82	77	75	71	67	63	55	45	39	47	63	62	62	62	61	60	17	8	8	8	8	8	8	8	8	8	8	8	8	
Tropic	2	2	2	2	1	1	1	3	7	3	3	3	3	3	3	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	
Kreider Domestic Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Danielson	2	2	2	2	2	2	2	2	2	2	3	4	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Crown & Pine Grove	16	16	13	12	13	16	16	12	15	19	28	23	24	21	15	15	14	10	11	11	11	11	11	11	11	11	11	11	10	11	
McGraw	14	14	12	11	9	8	7	7	8	12	11	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	
Lewis (D4)	2	1	1	1	0	0	0	0	0	2	2	0	0	0	0	0	0	1	5	5	5	5	5	5	5	5	4	1	0	0	
Homer	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lewis and Blanchard	4	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Myers No. 2	1	0	0	0	0	0	0	0	0	0	3	6	5	6	5	4	2	4	2	0	0	0	0	0	0	0	0	0	0	0	
Hare	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Coffman	2	2	2	2	2	2	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	
Knoder	3	3	2	2	3	2	1	1	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Myers No. 1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	
Myers Irr	6	5	5	5	4	3	3	3	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Evanston Pipeline	12	12	12	12	12	12	12	12	12	12	12	12	12	12	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	
Booth	18	12	9	7	7	11	7	3	1	0	0	5	12	10	12	12	10	6	10	10	10	10	10	10	10	10	10	10	10	10	
Anel Irr	15	10	10	10	8	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	1	1	1	1	1	1	1	1	
Cornelison	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	
Ev Water Supply (and Anderson)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Knight No. 2 (and No. 1)	4	4	4	4	5	4	4	4	3	2	2	2	4	4	3	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3	
"State Hospital Ditch"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Evanston Water	21	20	20	18	15	13	12	11	11	10	9	9	10	11	9	10	10	10	10	9	8	8	8	7	7	7	7	6	4	5	8
Wilson Irr	3	3	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Faulkner	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Rocky Mtn & Blyth (and Crompton)	8	8	8	8	8	8	7	6	5	5	4	4	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	
B.E.A.R. Project PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fife Irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Johnston & Narramore	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
Sim's Creek Slough Diversion	12	11	11	9	8	6	4	4	3	2	1	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
John Sims	14	12	11	8	7	5	5	4	4	4	5	9	4	5	4	5	5	6	8	7	6	6	5	5	5	6	5	4	4	4	
Michael Sims	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
S. P.	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	4	2	2	2	2	2	2	2	1	1	1	1	1	
Almy	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sims, Blight & Turner	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Bowns	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Nixon West Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Turner	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Chapman (Headgate)	76	73	72	69	66	62	59	56	52	45	42	36	48	60	61	61	60	58	56	48	46	42	42	41	40	40	37	37	29	20	
Chapman (Stataline, incl'd above)	61	55	49	44	38	36	30	30	29	30	30	31	32	32	31	31	33	33	34	33	34	42	70	58	44	30	18	15	12	10	
Morris Bros Irr (Lower)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bowns & Bruce	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Olson No. 1 Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Tunnel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8	11	11	10	7	2	7	10	11	9	8	10	11	9	11	
Francis-Lee	20	15	10	10	10	9	9	9	9	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bear River Canal	41	31	10	2	2	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	
TOTAL UPPER WY DIV.	506	469	426	403	385	364	336	314	292	287	287	308	319	314	309	306	304	299	213	171	161	162	168	166	162	161	161	150	125	121	123
Whitney Storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	91	101	107	102	72	72	80	15	15	15	15	15	18	12	12	
Sulphur Creek Storage	0	0	0	0	0	0	0	0	0	0	0	31	31	53	56	56	57	56	60	60	61	69	69	70	70	46	49	33	30	31	32
LOWER UTAH																															
Neville	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Booth	16	8	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Rees Land & Livestock	50	49	35	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Crawford-Thompson	135	107	11	16	16	16	16	16	16	16	16	16	15	14	14	13	13	13	13	12	12	11	11	11	11	11					

DAILY DISCHARGE IN CFS OF BEAR RIVER CANALS WITH COMPACT ALLOCATIONS IN THE UPPER DIVISION

	September																														Total		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
UPPER UTAH SECTION																																	
Hovarka (E Fk)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	640
Hatch (W Fk)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	158
UPPER WYOMING SECTION																																	
Hilliard East Fork (E Fk)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	771	
Lannon & Lone Mtn	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,327	
Hilliard West Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,492	
Bear (Bear R)	8	8	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	7	7	7	8	10	9	9	9	9	9	3,791	
Tropic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	
Kreider Domestic Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Danielson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180	
Crown & Pine Grove	8	5	4	4	4	4	5	5	4	4	4	5	4	4	4	4	4	4	4	3	3	3	3	3	3	6	3	3	3	2	1,391		
McGraw	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	4	5	4	4	4	4	4	4	4	1,200		
Lewis (D4)	0	1	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	361		
Homer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50		
Lewis and Blanchard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	136		
Myers No. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	204		
Hare	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	187		
Coffman	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	108	
Knoder	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Myers No. 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	166	
Myers Irr	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	414	
Evanson Pipeline	9	8	8	8	7	7	7	7	7	7	6	6	6	6	6	5	4	4	4	4	6	6	6	6	6	6	6	6	6	6	1,167		
Booth	3	3	3	3	3	3	3	2	2	2	2	2	2	5	10	1	4	5	5	1	2	2	4	6	5	5	5	6	0	2	1,227		
Anel Irr	3	3	4	4	4	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	912	
Cornelison	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260	
Ev Water Supply (and Anderson)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69		
Knight No. 2 (and No. 1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	188		
"State Hospital Ditch"	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Evanson Water	1	1	1	1	1	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1,301	
Wilson Irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	153	
Faulkner	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	127	
Rocky Mtn & Blyth (and Crompton)	2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	735	
B.E.A.R. Project PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	
File Irr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Johnston & Narramore	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	225	
Sim's Creek Slough Diversion	3	4	4	1	0	0	0	0	0	0	0	1	1	1	1	0	0	1	1	2	1	2	2	2	2	2	2	2	2	2	2	656	
John Sims	2	2	2	2	2	2	3	4	4	4	4	4	4	4	5	5	4	4	4	3	3	3	4	4	4	4	4	4	4	4	1,446		
Michael Sims	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	251	
S. P.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	666	
Almy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	86	
Sims, Blight & Turner	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	312	
Bowns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221	
Nixon West Side	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Turner	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	242	
Chapman (Headgate)	3	3	2	1	1	1	1	1	1	1	1	2	2	2	4	4	4	5	6	5	5	11	21	20	36	52	53	54	54	54	9,619		
Chapman (Stateline, incl'd above)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	7	32	32	32	32	32	7,393			
Morris Bros Irr (Lower)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	197		
Bowns & Bruce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	530	
Olson No. 1 Pump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5		
Tunnel	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,015		
Francis-Lee	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,252		
Bear River Canal	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	3,537		
TOTAL UPPER WY DIV.	69	65	65	61	60	61	59	58	58	57	57	50	42	46	52	41	42	41	42	45	47	44	56	70	68	86	99	100	95	96	38,692		
Whitney Storage	11	11	11	11	11	11	11	11	11	11	11	10	10	9	9	9	9	7	7	7	7	3	3	3	3	0	0	0	0	0	1,868		
Sulphur Creek Storage	26	23	23	23	22	19	15	15	15	15	15	12	8	7	7	7	6	6	6	6	6	6	4	2	2	2	2	2	2	2	2,775		
LOWER UTAH																																	
Neville	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	287	
Booth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	876	
Rees Land & Livestock	0	0	0	0																													

Central Division

The Compact provides that a water emergency shall be deemed to exist when the divertible flow in the Central Division drops below 870 cfs. A water emergency shall also be deemed to exist in the Central Division if the flow rate at the Border Gage drops below 350 cfs. The Compact provides that once a water emergency is deemed to exist, the State of Wyoming is to be restricted to 43 percent of the total divertible flow. The remaining 57 percent is available for use within Idaho.

Figures 2016.12 and 2016.13 graphically illustrate the Central Division's divertible flow and the respective allocations and diversions by the Wyoming and Idaho Sections under a water emergency. The flow passing the Border Gage is not illustrated on these figures as it confuses the diversion and allocation data. It is important to note that on Figure 2016.13 the line labeled as "Available to Idaho" represents the summation of diversions within the State of Idaho, as well as flow passing Stewart Dam and diversion to the Rainbow Inlet Canal. As the Compact provides that 57 percent of the Central Division's divertible flow shall be available for use within Idaho, this line is used to show whether such provision of the Compact was met. However, the Compact also provides that if Idaho elects to not divert into its canals its full entitlement, a portion of its allocation can pass into the Lower Division via the Rainbow Inlet Canal or Stewart Dam. Data for this hydrograph are based on the River Commissioners'/ Watermasters' annual reports to their respective state water agencies.

Figure 2016.14 shows a compilation of daily canal diversions as provided by the respective River Commissioners/Watermasters. The Wyoming and Idaho Sections' diversions and allocations are tabulated and summarized at the bottom of each page. The pages are divided such that there is one month's data per page. As the flow of the Bear River at the Border Gage could also be critical to the declaration of a water emergency, as defined by the Compact, this gage's data are also shown in these tables.

As described above, the 2016 water year started off with below average snowpack, but early spring rains and cooler temperatures bolstered the stream flows, thus initially averting the need for interstate regulation. There was also significant flow passing from the Upper Division to the Central Division for much of June. Flows stayed well above the water emergency trigger until mid-July when hot temperatures and very little precipitation eventually triggered regulation in the Central Division. Though flows dropped below the total divertible flow trigger in early July, there were initially still significant flows at the Border Gage. The first call-in was on July 22 and by July 29 the Central Division was formally put into interstate regulation. With the call for regulation coming later, many users had already started to turn off for the season. As can be seen on Figures 2016.12 and 2016.13, once the river went into interstate regulation there was equitable distribution of flows pursuant to the Compact. There was very good cooperation between the Wyoming and Idaho Watermasters throughout this irrigation season.

2016 - Central Division Distribution

Wyoming Section Diversions vs Allocation

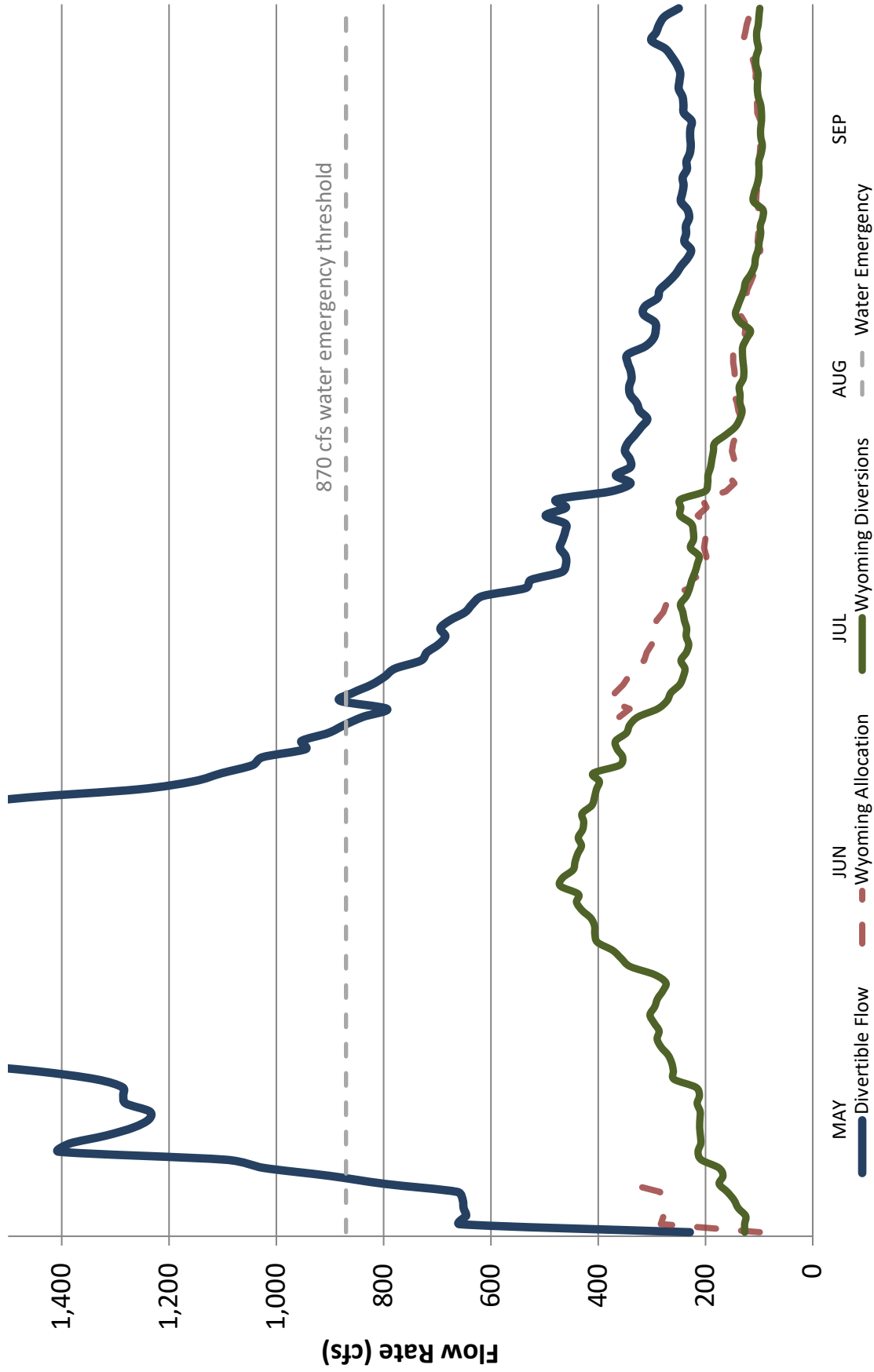


Figure 2016.12

2016 - Central Division Distribution

Idaho Section Diversions vs Allocation

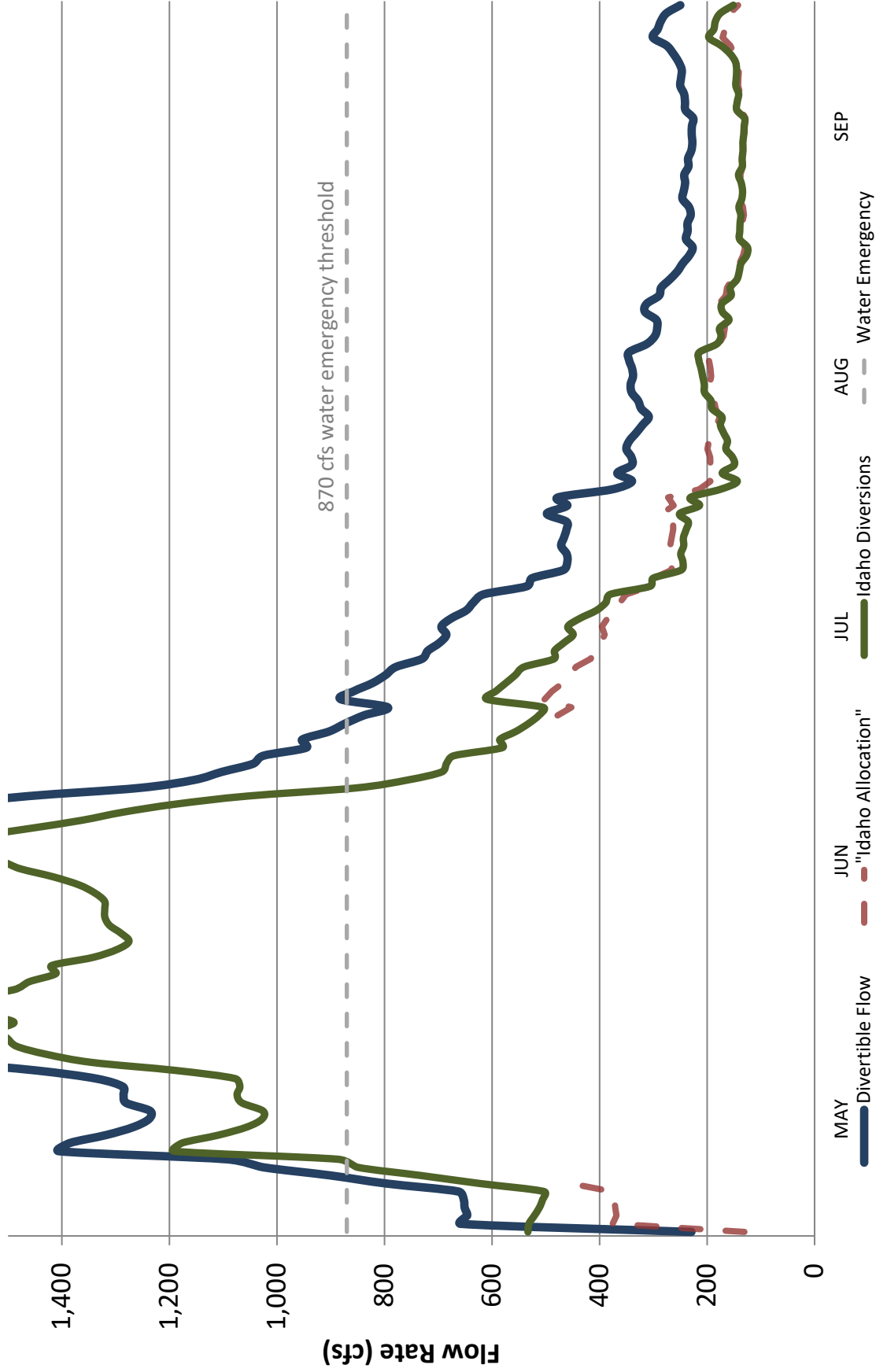


Figure 2016.13

Lower Division

The Compact provides that a Utah Lower Division water user can petition the Commission for interstate regulation if he believes that he is being deprived of water to which he is justly entitled due to diversions in Idaho. If, upon review, the Commission finds such to be the case, then the Compact provides for the declaration of a water emergency and that it shall put into effect water delivery schedules based on priority of rights without regard to the state line. The Commission has never received such a petition. However, with growing concern for such a possibility, the Commission, over a several year period, determined how it would receive and review such a petition and implement water delivery should a water emergency be declared. At its November meeting in 1997, the Commission adopted *Interim Procedures for Lower Division Water Delivery*. Appendix B to the procedures, which was revised with the procedures in April 2004, provides for the accounting and distribution method to be used in a water emergency.

Also appended to the procedures is *Water Delivery Schedule No. 1* which was revised by the Commission in 2015 and which includes the mainstem Lower Division water rights in both Idaho and Utah. After adoption of the water delivery schedule, both states began using this common schedule of water rights in their water right accounting programs. Hence, though not regulated by the Commission, the distribution in the Lower Division is cooperatively managed by the states of Idaho and Utah through their respective Watermasters and River Commissioners. Such distribution was facilitated in 2016 with bi-weekly conference calls with the state agencies, large water users and PacifiCorp. Figure 2016.15 shows the delivery of water in the Lower Division as reported by the two state agencies.

2016 Lower Division Irrigation Water Deliveries

Canal/Group	Natural Flow (af)	Storage Use (af)	Total Diversion (af)
Idaho			
Gentile Valley	10,680	108	10,788
West Cache	29,196	10,119	39,315
Cub River Pumps	775	16,792	17,567
Last Chance and Bench B	71,657	22,502	94,159
Idaho Small Irrigators	15,725	1,658	17,383
Utah			
Bear River Canal Company	194,098	86,934	281,032
Utah Small Irrigators	2,908	6,802	9,710

Figure 2016.15

Allocation and deliveries of Bear Lake storage water are significant in most years to the total water diverted in the Lower Division. In 1995, PacifiCorp, the irrigators and Bear Lake interests entered into a settlement agreement as to the allocation of storage water from Bear

Lake. In 2004 the parties entered into an *Amended and Restated Bear Lake Settlement Agreement*. PacifiCorp tracks deliveries pursuant to the settlement agreement. Figure 2016.16 shows such deliveries in 2016.

2016 Bear Lake Storage Deliveries

Irrigation Storage Allocation	224,000 af
Bear Lake Storage Release	166,000 af
Lake Recovery Volume	58,000 af
Decreed Transit Losses ¹	5,985 af
System Losses ²	12,900 af
Delivered Bear Lake Storage	153,100 af

¹Approximate, based on average rate for all irrigators

²Water that passes below Cutler Dam that is accounted for as storage water release

Figure 2016.16

With a below normal streamflow (81%) in the Lower Division and a hot, dry summer, storage usage from Bear Lake was above average. This, coupled with only a 58% of normal net Bear Lake Runoff, caused a net half a foot drop in lake elevation during the year. Allocation of natural-flow and storage use continued without requiring interstate regulation and was made by using the Idaho and Utah accounting models.

STATE WATER ACTIVITIES

Article XI of the Amended Compact provides that applications for appropriation or change in water use within each state shall be in accordance with individual state law, except no such application shall be approved if the effect will deprive water users within another state or increase the depletion beyond that which is provided for under the Compact. This article further requires that state officials report, in a format and at intervals established by the Commission, the status of their respective allocations and uses. The Commission has determined the best format for reporting such changes in use is the Biennial Report. Figure O.3 in the Overview section of this report provides the most recent depletion information. This portion of the Biennial Report provides a summary of major water and water right related activities in each of the states during the 2016 water year.

Idaho

Water Activities

On June 16, 2016, the Federal Energy Regulatory Commission denied an application for license to construct, operate, and maintain the proposed 10-megawatt Bear River Narrows Project No. 12486 filed by Twin Lakes Canal Company to be located in the Oneida Narrows Canyon on the Bear River in Franklin County.

In November 2015, the Department of Water Resources issued an order designating the Malad Valley Ground Water Management Area (GWMA) and establishing a temporary moratorium. Management of ground water appropriations in the GWMA will be governed by a management plan to be adopted by the Director. The temporary moratorium prohibits processing of new and pending applications for consumptive appropriation of ground water in the GWMA and will remain in effect for two years unless withdrawn or modified by the Director.

Water Rights

Water right permits were issued in Basins 11, 13 and 15 as shown in the table below:

<u>Right No.</u>	<u>Priority Date</u>	<u>Rate (cfs)</u>	<u>Source</u>	<u>Water Use</u>	<u>Total Acres</u>
11-7788	4/14/2014	4.0 (af)	SOREN CANYON CK	RECREATION & STOCK STORAGE	
11-7813	6/25/2015	0.040	SPRING	DOMESTIC, STOCKWATER	
11-7816	6/25/2015	0.040	SPRING	DOMESTIC, STOCKWATER	
11-7821	10/5/2015	0.050	SPRING	STOCKWATER	
11-7822	6/13/2016	0.040	SPRING	DOMESTIC	
13-7951	10/14/2015	5.000	WHISKEY CREEK	FISH PROPAGATION	
13-7964	4/19/2016	5.100	BEAR RIVER	IRRIGATION	600.0
13-7965	4/11/2016	0.260	BEAR RIVER	IRRIGATION	13.0
13-7966	4/20/2016	0.020	SPRINGS	STOCKWATER	
13-7967	6/23/2016	0.630	BEAR RIVER	IRRIGATION	31.5

Several transfer applications were approved with point of diversion and/or place of use changes: four approvals in Basin 11, two approvals in Basin 13, and five approvals in Basin 15.

Utah

Water Activities

Cache County voters in the November 2016 election approved the formation of the Cache Water District (CWD), and the Cache County Council appointed the initial Board of Trustees in January 2017.

Concerning the current study of the Bear River Development Project (BRDP), in 2015 the DWRe completed the geotechnical and geological field studies for six potential reservoir sites. In 2016, some additional field work was done at the potential White's Valley reservoir site in regards to some possible faulting.

In conjunction with a current program of the AGRC and UGS, LiDAR data will be gathered in 2017 for two potential sites – White's Valley and Washakie. The program has already gathered LiDAR data along the Bear River which has included three other potential sites – Above Cutler, Cub River, and Fielding. As part of the DWRe current study, LiDAR data was gathered at the Temple Fork site.

The scope of work for the DWRe's current study also includes ongoing refinement of the pipeline alignment, project management, public relations and inter-agency coordination assistance. The DWRe has continued discussions with the Utah Transit Authority (UTA) about potentially sharing a right-of-way (ROW) or working toward a utility corridor preservation in Box Elder County, particularly adjacent to the Interstate along the Willard Bay Reservoir. Early corridor preservation would be much more cost-effective wherever possible along potential pipeline alignments.

In early 2016, the DWRe collaborated with several agencies including Utah State University and Salt Lake Community College on a white paper concerning the potential impacts of water development on Great Salt Lake and the Wasatch Front. The white paper indicated that man's overall impact on Great Salt Lake since the arrival of 19th Century pioneers has decreased the lake's level by about 11 feet. The white paper also indicated that full development of the 220,000 acre-feet, as outlined in the Bear River Development Act, could decrease the lake level by another 8.5 inches.

A cloud seeding project to increase snowpack has been ongoing since 1989 in the Lower Division in Eastern Box Elder County and Cache County. The winter storm systems in these areas were seeded with 23 ground-based generators using silver iodide at a total cost of \$92,500. Bear River Water Conservancy District and Cache County cost shared (50/50) with the Utah Board of Water Resources in the cloud seeding project during the 2016 water year.

Water Rights

There were 42 applications to appropriate that were approved in Utah during 2016 for ground water for “ordinary domestic and stockwatering” purposes and associated irrigation use for 42 homes. In the Upper Division, in Rich County, there was an application to appropriate from a well approved for irrigation of 160.0 acres. Change applications were also approved to change the points of diversion, nature and/or place of use of historic water rights.

Wyoming

Water Activities

Following Sue Lowry’s retirement in June, State Engineer Patrick Tyrrell once again was appointed to the Bear River Commission. Timothy Teichert was appointed to replace Gordon Thornock as the Lower Wyoming Commission member. Kevin Payne was also appointed as Alternate Commissioner.

Telemetry stations were added on Sims Creek Slough diversion, Goodell, and V.H. Canal. There were also two internal canal telemetry sites added on Covey Canal and V.H. Canal. The Whitney Reservoir outflow telemetry site was moved to the new measuring device in the channel below the reservoir.

Wyoming continues to work towards producing a common method for the accounting of supplemental supply depletions. Additional efforts were made to gather diversion flow data and GIS mapping of the permitted acreage to aid in the development of this procedure as the TAC discussions on this topic move forward.

Water Rights

New water right permits subject to Compact depletions issued from Wyoming’s allocation are as follows:

<u>Permit No.</u>	<u>Appropriator</u>	<u>Priority Date</u>
P7827E	Roland C and Linda L Willis	February 6, 2016
P205612W	GCP LLC	May 16, 2016

STREAM GAGING

As was indicated in the Overview chapter of this report, under the subsection concerning the Stream Gaging Program, the Bear River Commission participates in a cooperative contract with the USGS for the maintenance of stream gages on the Bear River and significant tributaries. Also, the states, PacifiCorp and, at times, others participate in stream gaging on the Bear River and its tributaries. The Commission believes the collection of data concerning stream flows in the Bear River system is very important and allocates a significant portion of its annual budget in support of the cooperative stream gaging program with the U.S. Geological Survey. However, costs continue to increase and so the Commission is constantly reviewing the stream gaging program to determine if all of the stations supported are necessary for the Commission to fulfill the responsibilities assigned to it by the Compact. There were no changes to the Commission's stream gaging program in 2016.

During 2016, a total of 32 gages were maintained on the Bear River system. Of these 32 gages, 5 were part of a cooperative effort between the Bear River Commission and the USGS, and the USGS funded 7 gages under its Ground and Surface Water Information Program (GSWIP). PacifiCorp maintained 15 gages on the Bear River system during 2016. Three additional gages were maintained under the USGS Cooperative Program with the State of Utah (2 gages) and the State of Idaho (1 gage). Additionally, the State of Wyoming maintained 1 gage on the Bear River and the USFWS funded 1 USGS gage. Figure 2016.17 shows a tabulation of these gages and the entities which participated in the operation and funding of each gage. The approximate locations of the stream gages are shown on Figure O.5 in the Overview section of this report.

Publication of the streamflow records for 12 of the gages in this report were considered to be of significant value to the Commission and are included on pages 16-36 through 16-48.

BEAR RIVER SYSTEM STREAM GAGING STATIONS STREAM GAGES MAINTAINED DURING THE 2016 WATER YEAR

STATION #	STATION NAME	OPERATED BY	MEASUREMENT FUNDED BY	PUBLICATION FUNDED BY
<u>10011500</u> ¥	Bear River near UT-WY state line	USGS	USGS	USGS
10016900¥	Bear River at Evanston WY	USGS-WY	USGS	USGS
<u>10020100</u> ¥	Bear River above reservoir near Woodruff UT	USGS	USGS	USGS
<u>10020300</u>	Bear River below reservoir near Woodruff UT	USGS	BRC/USGS	BRC/USGS
10023000	Big Creek near Randolph UT	USGS	UTDNR/USGS	UTDNR/USGS
10026500	Bear River near Randolph UT	WSE	State of WY	State of WY
<u>10028500</u> ¹	Bear River below Pixley Dam near Cokeville WY	USGS	BRC/USGS	BRC/USGS
<u>10032000</u>	Smiths Fork near Border WY	USGS	BRC/USGS	BRC/USGS
10038000¥	Bear River below Smiths Fork near Cokeville WY	USGS	USGS	USGS
<u>10039500</u>	Bear River at Border WY	USGS	BRC/USGS	BRC/USGS
10044300	Dingle Inlet Canal near Dingle ID	PacifiCorp	PacifiCorp	not published
<u>10046000</u>	Rainbow Inlet Canal near Dingle ID	PacifiCorp	PacifiCorp	PacifiCorp
10046500 ²	Bear River below Stewart Dam near Montpelier ID	PacifiCorp	PacifiCorp	not published
<u>10055500</u>	Bear Lake at Lifton near St. Charles ID	PacifiCorp	PacifiCorp	PacifiCorp
<u>10059500</u>	Bear Lake Outlet Canal near Paris ID	PacifiCorp	PacifiCorp	PacifiCorp
10068500	Bear River at Pescadero ID	USGS	IDDNR/USGS	IDDNR/USGS
10075000	Bear River at Soda Springs ID	PacifiCorp	PacifiCorp	PacifiCorp
10079000	Soda Point Reservoir at Alexander ID	PacifiCorp	PacifiCorp	PacifiCorp
10079500	Bear River at Alexander ID	PacifiCorp	PacifiCorp	PacifiCorp
10080000	Bear River below Grace Dam near Grace ID	PacifiCorp	PacifiCorp	PacifiCorp
10086000	Oneida Narrows Reservoir at Oneida ID	PacifiCorp	PacifiCorp	PacifiCorp
10086500	Bear River below PacifiCorp Tailrace at Oneida ID	PacifiCorp	PacifiCorp	PacifiCorp
<u>10092700</u>	Bear River at ID-UT state line	USGS	BRC/USGS	BRC/USGS
10105900	Little Bear River at Paradise UT	USGS	UTDNR/USGS	UTDNR/USGS
10108400¥	Logan, Hyde Park, Smithfield Canal near Logan UT	USGS	USGS	USGS
<u>10109000</u> ³ ¥	Logan River above State Dam near Logan UT	USGS	USGS	USGS
10113500¥	Blacksmith Fork abv Upper & Lower Dam Near Hyrum UT	USGS	USGS	USGS
10116500	Cutler Reservoir near Collinston UT	PacifiCorp	PacifiCorp	PacifiCorp
10117000	Hammond (East Side) Canal near Collinston UT	PacifiCorp	PacifiCorp	PacifiCorp
10117500	West Side Canal near Collinston UT	PacifiCorp	PacifiCorp	PacifiCorp
10118000	Bear River near Collinston UT	PacifiCorp	PacifiCorp	PacifiCorp
<u>10126000</u>	Bear River near Corinne UT	USGS	USFWS	USFWS/USGS

Notes:

— Underlined station numbers indicate those gages for which stream flow data is published in this report.
 ¥ NSIP site.

¹ This gage is operated seasonally from April 1 until September 30 each year.

² Discharge measurements below Stewart Dam are required for interstate regulation pursuant to the Compact. However, flow is general only a few cfs. PacifiCorp maintains this gage and reports discharge to the Idaho watermaster. The data are included with the Central Division's canal diversion data herein.

³Gage 10109001 represents a summation of the Logan River discharge (10109000) and canal diversions (10108400) upstream of the gage. This is not a physical river gage. Gages 10109000 and 10108400 are part of the Ground and Surface Water Information Program (GSWIP).

Figure 2016.17

10011500 BEAR RIVER NEAR UTAH-WYOMING STATE LINE

LOCATION.--Lat 40°57'55", long 110°51'10" referenced to North American Datum of 1927, in SE ¼ NW ¼ SE ¼ sec.30, T.3 N., R.10 E., Summit County,UT, Hydrologic Unit 16010101, on left bank 400 ft downstream from West Fork and 2.8 mi upstream from Utah-Wyoming State line.

DRAINAGE AREA.--172 mi².

PERIOD OF RECORD.--July 1942 to current year.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 7,965 ft above NGVD of 1929, from river-profile map. Prior to October 1, 1986 at datum 3.0 ft higher.

REMARKS.-- Records good except for estimated daily discharges which are poor and other periods as noted. Records fair May 20, 2014 through Jun. 17, 2014 due to variable control conditions from snow-melt runoff. Flow regulated slightly by Whitney Reservoir, total capacity, 4,700 acre-ft since 1966. Three diversions above station for irrigation of about 265 acres above and 2,600 acres below station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,390 ft³/s, Jun 30, 2011, gage height, 7.82 ft; minimum, 6.8 ft³/s, Apr 12, 1984, result of upstream ice jam.

DISCHARGE, CUBIC FEET PER SECOND

YEAR 2015-10-01 to 2016-09-30

DAILY MEAN VALUES

[e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	50.7	54.0	e30.0	e26.0	e32.0	32.7	37.3	108	977	299	86.3	53.7
2	50.7	52.6	e33.0	e28.0	e28.0	33.6	39.0	117	1,120	274	83.1	50.9
3	60.4	50.9	e39.0	e33.0	e30.0	30.6	44.3	151	1,210	247	81.6	52.5
4	66.1	48.7	e45.0	e37.0	e28.0	35.6	48.0	217	1,450	236	78.6	53.2
5	58.1	49.4	e42.0	e44.0	e33.0	35.3	52.1	329	1,600	212	78.7	53.2
6	55.8	46.5	e44.0	e46.0	e37.0	36.7	48.4	527	1,740	196	81.1	49.8
7	54.0	41.2	e36.8	e48.0	e37.0	35.6	61.3	544	1,730	184	81.1	47.2
8	51.8	50.7	e36.5	e44.0	e36.0	30.8	75.1	413	1,810	171	90.1	46.3
9	50.4	51.0	e37.5	e38.0	e36.0	36.3	90.9	627	1,820	155	89.9	46.6
10	49.6	48.3	e41.3	e34.0	e35.0	35.0	106	564	1,680	162	86.6	46.2
11	48.9	47.8	e38.0	e32.0	e35.0	38.4	109	398	1,410	183	90.9	45.4
12	47.6	46.8	e36.0	e34.0	e36.0	38.3	116	413	1,400	228	90.3	44.6
13	46.8	50.2	e38.0	e38.0	33.0	37.6	136	532	1,290	219	86.3	45.9
14	46.7	51.8	e39.0	e39.4	33.1	37.7	159	704	1,130	211	82.9	77.4
15	46.7	47.9	e42.0	e38.2	32.9	32.2	128	974	1,070	204	81.9	66.8
16	46.7	47.7	e40.0	e37.6	32.5	38.6	117	907	1,070	197	81.7	57.4
17	47.0	45.8	e35.0	e37.3	31.6	37.5	104	691	989	190	81.5	54.2
18	49.5	48.9	e36.0	e37.4	31.2	33.7	97.5	656	929	179	83.5	50.3
19	68.4	49.6	e36.9	e36.0	30.8	34.1	101	731	830	104	85.4	48.4
20	71.9	46.9	e35.1	e38.0	34.0	37.7	102	939	764	115	83.1	44.7
21	61.8	40.0	e34.0	e36.0	33.2	44.2	134	1,120	762	120	78.5	44.7
22	58.6	e46.0	e32.1	e35.0	33.8	44.1	195	792	719	119	76.1	57.6
23	57.5	e49.0	e34.3	e35.0	33.8	37.7	246	617	654	114	75.1	155
24	54.0	e52.0	e32.0	e38.0	33.0	39.1	187	569	610	107	74.1	115
25	52.7	e49.0	e31.0	e33.0	e34.0	39.3	166	532	525	104	68.7	98.2
26	51.7	e35.0	e30.0	e30.0	e35.0	33.7	149	533	408	103	69.3	107
27	50.9	e32.0	e27.0	e31.0	e35.0	38.8	140	494	356	99.6	68.3	118
28	46.2	e33.0	e28.0	e32.0	e33.5	38.8	135	536	327	94.5	66.2	121
29	53.9	e29.0	e33.0	e35.0	34.7	38.3	122	620	319	90.8	64.7	124
30	55.4	e33.0	e33.0	e34.0		36.4	113	737	324	90.2	64.4	123
31	55.6		e27.0	e32.0		38.3		910		90.3	63.4	
Total	1,666	1,375	1,103	1,117	968	1,137	3,358	18,000	31,019	5,098	2,453	2,098
Mean	53.7	45.8	35.6	36.0	33.4	36.7	112	581	1,034	164	79.1	69.9
Max	71.9	54.0	45.0	48.0	37.0	44.2	246	1120	1820	299	90.9	155
Min	46.2	29.0	27.0	26.0	28.0	30.6	37.3	108	319	90.2	63.4	44.6
Ac-ft	3,305	2,727	2,187	2,215	1,920	2,255	6,662	35,710	61,529	10,110	4,866	4,162

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943-2016, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	65.9	54.9	45.6	41.6	39.6	43.9	113	597	829	296	93.2	75.4
Max	208	106	94.9	72.4	64.3	77.9	316	1,044	1,990	1,371	244	229
(WY)	(1983)	(1984)	(1984)	(1984)	(1984)	(2015)	(1946)	(1984)	(1986)	(2011)	(1965)	(1983)
Min	30.8	32.5	27.7	28.9	21.1	26.0	37.2	162	204	67.4	31.0	23.9
(WY)	(1959)	(1955)	(1960)	(2007)	(2003)	(1964)	(1944)	(1977)	(1992)	(1961)	(2002)	(1956)

Figure 2016.17 (cont.)

10020100 BEAR RIVER ABOVE RESERVOIR, NEAR WOODRUFF, UT

LOCATION.--Lat 41°26'04", long 111°01'01" referenced to North American Datum of 1927, in NE ¼ NW ¼ sec.29, T.17 N., R.120 W., Uinta County, WY, Hydrologic Unit 16010101, on right bank 9.3 mi upstream from Woodruff Narrows Dam and 10 mi southeast of Woodruff.

DRAINAGE AREA.--755 mi².

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 6,455 ft above NGVD of 1929, from river-profile map.

REMARKS.-- Diversion for irrigation of about 43,500 acres above station. Records are good except estimated daily discharges which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,150 ft³/s, Jun 2, 1983, gage height, 6.17 ft; minimum, no flow several days during Aug, Sep 1988, and Sep 2002.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2015-10-01 to 2016-09-30 DAILY MEAN VALUES [e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	22.7	8.48	e15.0	e15.0	e29.0	e70.0	113	192	943	87.3	5.34	23.2
2	22.0	9.72	e18.0	e20.0	e23.0	e73.0	99.1	173	1,010	77.4	5.97	25.7
3	26.6	11.6	e21.0	e32.0	e21.0	e83.0	97.8	160	1,050	69.8	5.92	25.6
4	34.5	12.0	e27.0	e40.0	e22.0	e98.0	99.8	190	1,200	61.1	5.90	23.7
5	38.7	10.1	e29.0	e44.0	e22.0	e120	106	261	1,430	47.0	7.63	24.2
6	24.1	7.46	e28.0	e44.0	e24.0	e137	101	412	1,570	31.8	8.19	24.1
7	17.1	7.68	e27.0	e46.0	e26.0	e156	82.2	679	1,670	21.2	5.00	24.6
8	17.5	7.07	e32.0	e43.0	e25.0	e131	88.8	783	1,740	16.7	7.19	23.3
9	13.9	6.48	e36.0	e37.0	e24.0	e114	96.9	1,000	1,760	14.1	12.0	21.3
10	18.0	6.54	e40.0	e34.0	e23.0	e95.0	102	1,360	1,730	11.7	26.8	18.9
11	17.2	6.00	e37.0	e30.0	e23.0	108	129	1,020	1,610	10.5	30.1	17.0
12	16.6	e7.00	e35.0	e36.0	e24.0	118	165	738	1,430	10.6	33.1	16.9
13	14.8	e7.00	e34.0	e35.0	e28.0	136	164	669	1,390	9.26	35.7	16.9
14	10.9	e8.00	e33.0	e40.0	e38.0	144	196	781	1,220	8.68	36.7	25.5
15	7.15	e8.00	e36.0	e40.0	e44.0	116	220	936	995	12.1	32.5	26.0
16	8.02	e7.00	e32.0	e38.0	e47.0	97.1	189	1,320	853	5.42	31.2	40.9
17	8.98	e6.00	e30.0	e38.0	e48.0	104	157	1,300	720	6.16	22.4	33.9
18	9.49	e9.00	e33.0	e37.0	e50.0	98.1	118	1,030	619	9.88	30.3	25.8
19	11.9	e14.0	e36.0	e36.0	e52.0	93.3	125	1,010	527	10.1	34.5	21.2
20	15.0	e12.2	e35.0	e37.0	e51.0	87.9	132	1,150	449	8.69	34.2	17.2
21	24.2	e8.00	e34.0	e37.0	e56.0	102	126	1,400	406	5.54	31.0	16.2
22	27.4	e10.0	e33.0	e34.0	e54.0	129	150	1,560	348	4.07	30.2	16.6
23	23.1	e11.7	e35.0	e33.0	e54.0	131	244	1,160	284	9.16	27.0	26.9
24	20.9	e7.00	e31.0	e36.0	e56.0	104	294	899	238	11.3	21.8	91.1
25	18.2	e11.0	e27.0	e34.0	e56.0	106	246	786	205	9.35	26.7	92.1
26	17.5	e9.00	e22.0	e32.0	e58.0	104	255	679	171	8.67	30.1	66.8
27	17.1	e9.00	e17.0	e32.0	e60.0	81.7	289	625	134	7.34	30.0	31.0
28	12.7	e10.0	e20.0	e34.0	e62.0	96.5	286	597	113	4.83	30.2	32.0
29	8.65	e11.0	e28.0	e35.0	e63.0	119	257	611	85.4	5.24	29.6	35.2
30	7.47	e15.0	e28.0	e31.0		120	222	676	65.5	5.29	28.2	41.1
31	7.03		e17.0	e29.0		113		826		5.86	23.5	
Total	539	273	906	1,089	1,163	3,386	4,951	24,980	25,970	606	719	925
Mean	17.4	9.10	29.2	35.1	40.1	109	165	806	866	19.6	23.2	30.8
Max	38.7	15.0	40.0	46.0	63.0	156	294	1560	1760	87.3	36.7	92.1
Min	7.03	6.00	15.0	15.0	21.0	70.0	82.2	160	65.5	4.07	5.00	16.2
Ac-ft	1,070	542	1,797	2,160	2,307	6,715	9,819	49,550	51,500	1,202	1,426	1,835

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 -2016, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	65.8	64.9	63.6	61.9	73.8	151	306	766	798	187	46.9	45.9
Max	437	198	181	147	312	627	671	1,957	2,564	1,355	340	288
(WY)	(1983)	(1974)	(1984)	(1984)	(1986)	(1986)	(1969)	(1984)	(1986)	(2011)	(1983)	(1983)
Min	3.03	6.06	7.21	6.76	10.4	26.8	77.7	104	47.3	4.41	.68	.49
(WY)	(1965)	(1989)	(1989)	(1989)	(2003)	(1977)	(1977)	(1977)	(2012)	(2000)	(2000)	(1988)

Figure 2016.17 (cont.)

10020300 BEAR RIVER BELOW RESERVOIR, NEAR WOODRUFF, UT

LOCATION.--Lat 41°30'20", long 111°00'50" referenced to North American Datum of 1927, in NE ¼ NE ¼ NW ¼ sec.32, T.18 N., R.120 W., Uinta County, WY, Hydrologic Unit 16010101, on right bank 1,100 ft downstream from Woodruff Narrows Dam, 1.6 mi upstream from Salt Creek, 5.4 mi upstream from Wyoming-Utah State line, and 7.7 mi east of Woodruff.

DRAINAGE AREA.--784 mi².

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 6,398.96 ft above NGVD of 1929. Prior to September 26, 1962, at site 175 ft upstream at same datum.

REMARKS.-- Flow regulated by Woodruff Narrows Reservoir (station 10020200) beginning January 1962. Diversions for irrigation of about 43,500 acres above station. Records are good, except estimated daily discharges which are poor, and other exceptions as noted. Aug 4 to Sep 30, 2014 records are fair (due to variable control conditions from rain storm event).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,820 ft³/s, Jun 2, 1983, gage height, 8.26 ft; no flow Jul 4, 5, 1962, Aug 30, 31, Sep 1, 2, 6, 7, 1979, Oct 30, 1980.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2015-10-01 to 2016-09-30 DAILY MEAN VALUES [e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	13.3	12.8	11.1	11.1	10.6	10.7	10.8	208	827	644	44.7	27.3
2	13.3	12.8	11.1	11.1	10.7	10.7	11.1	187	901	316	45.1	27.3
3	13.3	12.8	11.1	11.1	10.6	10.7	11.1	172	970	116	45.5	27.3
4	13.3	12.8	11.1	11.0	10.1	10.6	11.1	168	1,050	115	45.2	27.2
5	13.2	12.5	11.0	10.9	9.95	10.6	11.0	187	1,220	115	45.1	27.3
6	13.1	12.1	11.0	11.1	9.95	10.7	11.1	261	1,380	115	45.0	27.3
7	13.1	11.8	11.0	11.1	9.95	10.6	11.1	413	1,510	115	45.4	27.3
8	13.2	11.4	11.0	11.1	9.95	10.4	11.1	592	1,620	116	44.9	27.3
9	13.2	11.3	10.8	11.1	10.1	10.7	11.1	759	1,670	116	44.4	27.3
10	13.2	11.5	10.9	11.1	10.3	10.6	11.1	999	1,670	116	44.7	27.3
11	13.2	11.4	11.1	11.3	10.3	10.5	11.1	1,100	1,610	116	44.7	27.3
12	13.1	11.5	11.1	11.0	10.3	10.6	11.1	915	1,490	74.5	44.8	22.8
13	13.1	11.5	11.1	11.0	10.3	10.7	11.1	765	1,400	57.7	39.0	17.8
14	13.0	11.5	11.1	10.9	10.3	10.6	11.1	727	1,300	54.0	32.3	17.8
15	13.2	11.5	11.1	11.0	10.3	10.5	11.1	792	1,130	50.3	32.2	17.8
16	13.3	11.5	11.3	11.0	10.3	10.6	11.1	1,010	963	50.1	32.2	17.8
17	13.3	11.5	11.4	11.0	10.3	10.7	11.1	1,190	850	49.3	31.6	17.7
18	13.2	11.5	11.5	10.8	10.6	10.7	11.1	1,120	826	49.2	30.4	17.6
19	13.3	11.4	11.5	10.9	10.6	10.7	11.5	1,030	793	48.7	29.8	17.5
20	13.3	11.5	11.5	10.9	10.3	10.8	11.5	1,050	808	48.0	28.9	17.6
21	13.2	11.5	11.5	10.1	10.3	11.1	11.5	1,210	768	48.3	28.2	17.7
22	13.3	11.5	11.5	10.3	10.4	11.1	11.6	1,420	695	48.0	27.3	17.8
23	13.2	11.2	11.5	10.3	10.4	11.1	12.1	1,350	664	47.4	27.3	17.3
24	12.8	11.4	11.3	10.3	10.6	11.1	12.4	1,110	661	47.2	27.3	17.4
25	12.8	11.1	11.3	10.3	10.7	11.1	15.6	937	659	47.1	27.3	17.2
26	12.8	11.3	11.1	10.3	10.5	10.8	50.5	818	658	46.5	27.3	17.3
27	12.8	11.5	11.1	10.3	10.6	10.7	115	725	657	46.8	27.3	17.4
28	12.8	11.3	11.1	10.3	10.6	10.7	181	663	654	46.0	27.3	17.6
29	12.8	11.1	11.1	10.4	10.7	10.7	218	720	651	45.8	27.3	17.7
30	12.8	11.1	10.9	10.5		10.7	224	725	649	45.2	27.3	17.8
31	12.8		10.9	10.6		10.7		731		45.1	27.3	
Total	406	350	346	334	301	332	1,074	24,050	30,700	2,995	1,097	640
Mean	13.1	11.7	11.2	10.8	10.4	10.7	35.8	776	1,023	96.6	35.4	21.3
Max	13.3	12.8	11.5	11.3	10.7	11.1	224	1420	1670	644	45.5	27.3
Min	12.8	11.1	10.8	10.1	9.95	10.4	10.8	168	649	45.1	27.3	17.2
Ac-ft	806	693	686	663	596	660	2,130	47,710	60,900	5,941	2,176	1,269

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2016, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	52.0	47.2	40.6	38.7	39.8	81.7	244	738	952	263	70.6	56.0
Max	425	421	184	153	171	473	891	1,828	2,437	1,339	331	278
(WY)	(1983)	(1983)	(1983)	(1985)	(1971)	(1972)	(1985)	(1984)	(1983)	(2011)	(1983)	(1983)
Min	3.89	.12	4.28	4.37	4.71	4.70	.34	27.8	357	10.4	3.91	3.65
(WY)	(1990)	(1981)	(1978)	(1978)	(1978)	(1978)	(1977)	(1977)	(2002)	(2002)	(1979)	(1979)

10028500 BEAR RIVER BELOW PIXLEY DAM, NEAR COKEVILLE, WY

LOCATION.--Lat 41°56'20", long 110°59'05" referenced to North American Datum of 1927, in SW ¼ SE ¼ SE ¼ sec.25, T.23 N., R.120 W., Lincoln County, WY, Hydrologic Unit 16010102, 800 ft downstream from Pixley Dam, 11 mi south of Cokeville, and 17.5 mi downstream from Twin Creek.

DRAINAGE AREA.--2,032 mi².

PERIOD OF RECORD.--October 1941 to November 1943 (published as Bear River near Cokeville), October 1952 to September 1956, May 1958 to current year (seasonal only). Monthly discharge only for some periods, published in WSP 1314.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 6,185 ft above NGVD of 1929, from river-profile map. October 31, 1941 to November 30, 1943, at site 200 ft downstream at different datum. September 24, 1952 to August 31, 1994 at site 50 ft downstream at same datum. May 7, 2015 to August 14, 2015 at site 850 ft upstream at same datum.

REMARKS.-- Natural flow of stream affected by diversions for irrigation, return flow from irrigated areas, and regulation by upstream reservoirs. Records are fair except for estimated daily discharges which are poor and other periods as noted. 6/20/14 - 7/12/14; records are poor due to variable control conditions from backwater. 5/6/15 - 9/30/16, 3/18/16 - 5/16/16, 6/8/16 - 10/4/16; records are good.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,300 ft³/s, Mar 25, 1956; minimum daily discharge, 0.09 ft³/s, Sep 8, 2002.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2015-10-01 to 2016-09-30 DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	---	---	---	---	---	---	85.6	72.6	523	220	28.7	16.6
2	---	---	---	---	---	---	85.0	75.4	501	227	30.1	16.1
3	---	---	---	---	---	---	84.3	79.9	443	235	29.2	15.8
4	---	---	---	---	---	---	84.4	61.3	430	245	28.3	15.7
5	---	---	---	---	---	---	79.6	54.6	432	248	28.1	16.0
6	---	---	---	---	---	---	77.1	56.8	428	218	26.7	16.3
7	---	---	---	---	---	---	74.0	70.0	435	191	25.2	16.4
8	---	---	---	---	---	---	72.0	91.3	462	189	25.6	16.2
9	---	---	---	---	---	---	69.4	105	486	180	28.0	16.4
10	---	---	---	---	---	---	67.8	133	514	165	42.4	16.5
11	---	---	---	---	---	---	66.2	154	541	158	43.3	16.8
12	---	---	---	---	---	---	63.5	208	577	149	39.1	11.5
13	---	---	---	---	---	---	67.9	253	622	139	34.0	8.78
14	---	---	---	---	---	---	68.9	255	661	138	31.2	12.6
15	---	---	---	---	---	---	74.1	209	783	133	28.1	15.2
16	---	---	---	---	---	---	83.9	201	969	119	26.0	16.9
17	---	---	---	---	---	---	82.8	208	914	100	25.8	17.6
18	---	---	---	---	---	98.2	74.0	220	873	86.8	25.7	17.6
19	---	---	---	---	---	95.1	67.9	255	816	75.2	19.3	17.9
20	---	---	---	---	---	91.5	65.8	314	723	59.7	21.3	18.2
21	---	---	---	---	---	91.2	63.4	360	628	59.6	21.8	18.4
22	---	---	---	---	---	89.8	60.6	405	472	60.7	21.5	19.3
23	---	---	---	---	---	90.4	57.8	423	359	59.8	21.4	21.3
24	---	---	---	---	---	93.5	57.2	420	283	56.7	20.3	23.4
25	---	---	---	---	---	89.6	57.1	385	257	51.9	19.4	24.5
26	---	---	---	---	---	61.2	59.1	459	247	46.7	18.6	24.7
27	---	---	---	---	---	45.7	59.7	595	233	40.4	17.7	23.9
28	---	---	---	---	---	53.8	62.3	576	222	34.9	17.6	23.6
29	---	---	---	---	---	75.8	61.5	560	219	31.2	17.6	23.6
30	---	---	---	---	---	84.6	65.4	537	219	29.8	17.6	23.9
31	---	---	---	---	---	82.8		523		28.3	16.8	
Total							2,098	8,320	15,270	3,776	796	542
Mean							69.9	268	509	122	25.7	18.1
Max							85.6	595	969	248	43.3	24.7
Min							57.1	54.6	219	28.3	16.8	8.78
Ac-ft							4,162	16,500	30,290	7,489	1,580	1,074

Figure 2016.17 (cont.)

10032000 SMITHS FORK NEAR BORDER, WY

LOCATION.--Lat 42°17'36", long 110°52'18" referenced to North American Datum of 1927, in NE ¼ SW ¼ sec.28, T.27 N., R.118 W., Lincoln County, WY, Hydrologic Unit 16010102, on left bank 4.9 mi upstream from Howland Creek, 5.6 mi downstream from Hobble Creek, and 12.4 mi northeast of Border.

DRAINAGE AREA.--165 mi².

PERIOD OF RECORD.--May 1942 to current year.

REVISED RECORDS.--WSP 1734: 1952(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 6,720 ft above NGVD of 1929, from topographic map. Prior to October 16, 1945, at site 1.2 mi downstream at different datum. October 16, 1945 to November 1986 at site 0.4 mi downstream at different datum.

REMARKS.-- Records good except for estimated daily discharges which are poor. One diversion for irrigation of about 200 acres above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,100 ft³/s, Jun 4, 1986, gage height, 5.66 ft; minimum, 19 ft³/s, Feb 28, 2007.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2015-10-01 to 2016-09-30 DAILY MEAN VALUES

[e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	95.9	83.5	e47.0	e33.0	e54.0	56.0	61.4	221	577	317	147	101
2	99.9	90.1	e49.0	e34.0	e49.0	e57.7	65.7	229	596	278	144	101
3	98.5	87.1	e54.0	e45.0	e51.0	56.0	73.1	246	621	263	141	102
4	98.6	84.7	e58.0	e48.0	e49.0	e57.2	84.7	282	660	255	136	101
5	95.6	82.3	e56.0	e53.0	e55.0	59.1	88.5	324	683	246	134	105
6	94.4	83.4	e58.0	e54.0	e59.0	60.7	86.8	383	704	242	134	102
7	93.8	72.0	e53.0	e55.0	e59.0	61.9	96.4	615	693	235	139	101
8	92.5	e80.0	e52.0	e53.0	e58.0	58.0	115	583	676	229	138	99.4
9	91.6	82.7	e53.0	e47.0	e58.0	e60.6	136	995	677	222	128	98.9
10	91.1	83.1	e56.0	e46.0	e57.0	58.9	160	755	669	216	126	98.5
11	90.0	78.8	e53.0	e41.0	e57.0	61.4	166	631	625	215	125	97.5
12	89.3	79.8	e52.0	e40.0	e58.0	63.0	180	553	583	210	124	97.5
13	88.9	78.0	e53.0	e45.0	58.8	65.2	220	527	560	204	122	99.2
14	88.5	76.2	e54.0	e53.0	59.7	66.2	233	543	552	200	120	109
15	87.4	76.2	e56.0	e55.0	59.8	61.3	195	596	512	199	119	102
16	87.3	77.0	e55.0	e58.0	59.8	61.1	182	573	492	197	118	99.5
17	87.1	76.3	e51.0	e60.0	59.5	62.0	185	553	464	194	119	97.6
18	87.2	77.6	e52.0	e61.0	63.0	57.0	183	523	442	191	120	95.8
19	89.4	74.0	e53.0	e58.0	60.3	e55.0	184	523	424	187	118	94.3
20	88.7	79.3	e51.0	e60.0	59.1	e61.0	227	685	406	184	115	93.5
21	87.0	60.0	e49.0	e58.0	57.0	65.1	283	720	387	183	113	93.0
22	85.7	e64.0	e47.0	e57.0	e58.0	68.9	325	700	372	179	113	104
23	84.9	e66.0	e49.0	e57.0	e58.0	63.7	355	655	355	175	111	118
24	84.3	e68.0	e47.0	e60.0	e55.6	61.0	310	619	340	171	110	117
25	83.8	e66.0	e46.0	e55.0	e58.0	61.9	276	594	325	167	110	105
26	83.6	e60.0	e44.0	e51.0	e58.0	58.0	258	552	313	164	109	99.0
27	84.1	e55.0	e36.0	e52.0	59.2	e59.4	241	532	300	161	105	95.9
28	83.5	e50.0	e35.0	e53.0	59.0	64.3	241	514	288	156	103	93.9
29	84.1	e47.0	e39.0	e57.0	e58.2	63.1	230	510	279	152	103	92.6
30	85.3	e50.0	e39.0	e56.0		64.5	225	536	336	152	102	92.6
31	84.3		e35.0	e53.0		61.3		555		151	101	
Total	2,766	2,188	1,532	1,608	1,665	1,891	5,667	16,830	14,910	6,294	3,747	3,007
Mean	89.2	72.9	49.4	51.9	57.4	61.0	189	543	497	203	121	100
Max	99.9	90.1	58.0	61.0	63.0	68.9	355	995	704	317	147	118
Min	83.5	47.0	35.0	33.0	49.0	55.0	61.4	221	279	151	101	92.6
Ac-ft	5,487	4,340	3,039	3,189	3,302	3,750	11,240	33,380	29,580	12,490	7,432	5,964

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 2016, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	90.3	77.8	68.0	62.8	60.1	62.6	158	522	606	288	150	107
Max	156	114	88.4	85.0	82.8	102	385	1,072	1,377	779	280	169
(WY)	(1987)	(1986)	(1983)	(1983)	(1984)	(2015)	(1946)	(1997)	(1986)	(2011)	(2011)	(2011)
Min	51.0	50.7	41.5	39.7	34.7	39.5	58.6	99.1	96.2	61.4	55.1	52.1
(WY)	(1978)	(1978)	(2002)	(2008)	(2003)	(1988)	(1975)	(1977)	(1977)	(1977)	(1977)	(1977)

Figure 2016.17 (cont.)

10039500 BEAR RIVER AT BORDER, WY

LOCATION.--Lat 42°12'40", long 111°03'11" referenced to North American Datum of 1927, in NE ¼ NE ¼ NE ¼ sec.15, T.14 S., R.46 E., Bear Lake County, ID, Hydrologic Unit 16010102, on left bank 0.2 mi west of Wyoming-Idaho State line, 0.5 mi west of Border, and 2.1 mi upstream from Thomas Fork.

DRAINAGE AREA.--2,480 mi².

PERIOD OF RECORD.--October 1937 to September 1996, October 1996 to September 2000 (seasonal), October 2000 to current year.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 6,051.63 ft above NGVD of 1929, unadjusted.

REMARKS.-- Natural flow of stream affected by regulation of upstream reservoirs, diversions for irrigation, and return flow from irrigated areas.

Records are good except estimated daily discharges which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,880 ft³/s, Jun 7, 1983, gage height, 9.69 ft; minimum discharge, 24 ft³/s, Apr 29, 30, 1977.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2015-10-01 to 2016-09-30 DAILY MEAN VALUES [e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	110	143	e124	e75.0	e117	e152	230	378	1,340	520	126	99.7
2	112	144	e122	e78.0	e106	e158	236	363	1,330	506	132	103
3	117	149	e129	e100	e111	e162	247	369	1,280	492	147	101
4	119	146	e141	e110	e106	e174	258	375	1,190	489	139	101
5	118	144	e137	e120	e106	e194	271	376	1,220	488	138	109
6	116	144	e130	e125	e113	e208	266	409	1,260	479	138	108
7	118	140	e132	e127	e114	e229	285	583	1,250	444	138	89.3
8	122	132	e140	e121	e122	e226	278	747	1,240	416	145	89.2
9	135	136	e148	e120	e122	e232	278	839	1,220	419	153	89.7
10	136	144	e155	e117	e122	230	297	1,110	1,230	401	156	89.1
11	137	145	e151	e117	e117	231	303	990	1,250	382	165	89.6
12	140	143	e137	e111	e118	239	303	908	1,280	366	171	88.9
13	141	153	e137	e113	e118	261	312	924	1,330	348	166	89.0
14	137	154	e147	e120	e119	268	356	940	1,470	339	162	e93.0
15	133	155	e142	e122	e120	260	365	1,000	1,500	331	155	97.9
16	130	160	e139	e120	e129	251	322	1,010	1,590	326	151	96.8
17	131	145	e137	e118	e136	243	312	1,020	1,610	306	149	98.6
18	132	156	e132	e115	e143	230	311	979	1,500	283	157	98.3
19	134	151	e132	e117	e147	214	299	947	1,400	259	158	97.4
20	136	167	e138	e124	e148	209	304	1,120	1,290	241	127	92.7
21	143	147	e137	e122	e149	209	338	1,310	1,170	220	124	92.3
22	147	e136	e137	e120	e152	225	371	1,470	1,010	214	124	91.8
23	146	e142	e132	e120	e150	227	408	1,480	820	203	107	109
24	143	e147	e127	e121	e149	224	434	1,460	701	199	98.5	121
25	143	e150	e121	e122	e148	224	407	1,460	605	202	91.9	121
26	142	e149	e106	e117	e149	216	396	1,380	571	196	93.2	113
27	142	e141	e85.0	e111	e152	197	379	1,530	543	188	94.4	103
28	142	e148	e90.0	e113	e154	183	374	1,550	511	175	94.5	98.3
29	141	e137	e106	e121	e153	200	374	1,470	486	136	97.4	95.2
30	144	e141	e103	e117		223	400	1,420	444	119	101	94.5
31	145		e85.0	e117		231		1,370		112	98.0	
Total	4,132	4,389	3,978	3,570	3,790	6,730	9,714	31,290	33,640	9,799	4,097	2,960
Mean	133	146	128	115	131	217	324	1,009	1,121	316	132	98.7
Max	147	167	155	127	154	268	434	1550	1610	520	171	121
Min	110	132	85.0	75.0	106	152	230	363	444	112	91.9	88.9
Ac-ft	8,196	8,705	7,892	7,083	7,517	13,350	19,270	62,060	66,730	19,440	8,126	5,872

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2016, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	197	214	187	172	194	353	685	957	1,126	528	217	169
Max	752	693	563	381	479	1,293	1,979	3,158	3,829	2,837	752	671
(WY)	(1983)	(1983)	(1983)	(1985)	(1986)	(1986)	(1985)	(1952)	(1983)	(2011)	(1983)	(1983)
Min	43.5	74.7	97.2	77.6	75.2	105	71.2	74.4	62.2	54.2	42.3	38.5
(WY)	(2002)	(2002)	(2002)	(1993)	(1993)	(1988)	(1977)	(1977)	(1977)	(1977)	(1940)	(1940)

Figure 2016.17 (cont.)

**RAINBOW INLET CANAL NEAR DINGLE, ID
(10046000)**

STREAMFLOW RECORDS FOR WATER YEAR 2016

LOCATION.--Lat 42°13'48", long 111°17'43" referenced to North American Datum of 1927, in NW ¼ SW ¼ SE ¼ sec.3, T.14 S., R.44 E., BEAR LAKE County, Hydrologic Unit 16010201, on right bank 1.5 mi west of Dingle and 1.8 mi downstream from headworks at Stewart Dam.

PERIOD OF RECORD.--October 2006 to current year published by PacifiCorp. January 1922 to September 2006 published in United States Geological Survey Water-Data Reports. Monthly discharge only prior to October 1945, published in United States Geological Survey WSP 1314.

GAGE.--Water-stage recorder. Elevation of gage datum is 5,922.0 ft above NGVD of 1929, (by topographic survey). Prior to October 1, 1923, at site 300 ft downstream at different datum; October 1, 1923 to October 27, 1944, at site 0.5 mi downstream at different datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Canal diverts from Bear River at Stewart Dam in NE¼ sec. 34, T.013 S., R.0 44 E., for storage in Bear Lake. At times flow in canal is augmented by surplus water from Black Otter Slough entering at the station and by seepage and surplus water from irrigation. Flow contributions from Black Otter Slough is included in the values below.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 4,950 ft³/s, May 27, 1984; no flow Apr 28, 1977 and Oct 1, 1979.

DISCHARGE MEASUREMENT DATES.-- 9-12-15, 4-26-16, 5-30-16, 6-3-16, 6-9-16, 6-16-16, 6-18-16, 6-22-16, 6-25-16, 6-26-16, 7-1-16, 7-6-16, 7-12-16, 7-20-16, 8-11-16, 10-21-16.

**Rainbow Inlet Canal near Dingle, ID (10046000)
Water Year 2016 (October 2015 to September 2016)**

Daily Mean Values

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
1	75	150	140	130	107	125	240	431	1090	247	60	44	
2	75	160	140	130	107	125	250	424	1040	225	20	45	
3	75	160	140	130	107	125	250	409	1050	210	50	45	
4	86	160	140	130	107	150	275	394	950	200	34	45	
5	86	160	140	130	107	150	275	384	902	200	38	50	
6	86	160	140	130	107	150	261	377	882	403	50	47	
7	86	160	146	130	107	150	261	492	896	392	50	47	
8	80	146	146	130	107	175	270	598	911	380	60	51	
9	80	140	146	130	107	175	270	659	914	365	68	45	
10	95	140	146	130	107	175	270	689	913	352	68	45	
11	95	140	146	130	107	175	285	825	913	300	72	45	
12	95	140	146	140	107	175	290	810	923	330	76	45	
13	95	140	146	140	107	175	290	742	955	312	90	45	
14	95	140	146	140	107	185	249	688	1010	292	90	45	
15	95	157	146	140	107	185	276	660	1080	300	95	45	
16	95	157	150	140	117	185	289	659	1120	275	95	45	
17	95	157	146	140	117	185	285	699	1220	240	95	60	
18	95	157	146	140	125	185	274	700	1280	220	90	60	
19	95	157	146	140	125	185	263	697	1190	210	90	60	
20	95	157	146	140	125	160	254	707	1090	132	79	66	
21	90	157	146	107	125	150	300	817	996	125	79	66	
22	90	145	146	107	125	150	252	974	925	80	60	66	
23	90	150	146	107	125	200	332	1060	834	75	70	70	
24	90	150	146	107	125	210	412	1110	708	75	75	80	
25	162	150	146	107	125	200	464	1130	518	70	55	95	
26	162	150	140	107	125	200	468	1150	427	70	54	118	
27	162	150	140	107	125	200	466	1120	370	70	40	110	
28	162	150	130	107	125	200	461	1180	367	113	40	110	
29	150	140	130	107	125	200	455	1220	362	105	38	110	
30	150	140	130	107		225	442	1210	300	100	30	100	
31	150		130	107		225		1120		95	30		
Monthly Statistics													
Total	3,232	4,520	4,418	3,867	3,339	5,455	9,429	24,135	26,136	6,563	1,941	1,905	94,940
Mean	104	151	143	125	115	176	314	779	871	212	63	64	260
Min	75	140	130	107	107	125	240	377	300	70	20	44	20
Max	162	160	150	140	125	225	468	1,220	1,280	403	95	118	1,280
Ins. Min	75	140	130	107	107	125	186	369	300	13	8	44	8
Ins. Max	409	304	369	256	247	229	473	1,230	1,300	412	95	274	1,300
Ac-ft	6,410	8,970	8,760	7,670	6,620	10,820	18,700	47,870	51,840	13,020	3,850	3,780	188,310

**PacifiCorp
Reservoir Records
Bear Lake 2015-2016
Daily Contents (Acre Feet)**

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1	536738	586620	568441	579472	591822	611370	653278	675657	755315	769353	680277	576227	1
2	592473	587920	568441	580122	591822	611370	654593	676317	758654	766676	676317	573630	2
3	592473	587920	568441	580122	592473	612023	655907	676317	761327	764001	673020	570386	3
4	592473	587920	568441	580122	593774	612676	658536	676976	763332	760659	669066	567144	4
5	592473	587920	568441	580122	595076	613328	659851	677636	767345	757986	665115	563903	5
6	592473	587920	568441	580771	596379	613981	660508	678956	770022	755315	661166	561312	6
7	593123	586620	568441	581420	597681	614634	661166	680937	773368	752644	657221	557427	7
8	593123	585319	568441	582070	598332	615287	661824	683578	775376	749976	653935	554978	8
9	593123	584019	568441	582720	598332	615941	662482	686221	776716	747307	651307	552574	9
10	593123	584019	569738	582720	598984	616594	663140	688865	778056	745306	648024	550772	10
11	593123	582720	571035	583370	598984	618554	663799	691510	778726	742639	644744	548369	11
12	593123	580771	571683	583370	599635	619860	664457	694818	779396	739974	641464	545136	12
13	592473	578823	571683	584019	599635	621168	665115	698128	779396	737309	638186	542552	13
14	591822	578174	571683	584019	600286	622475	665773	700777	779396	734645	634910	539967	14
15	591172	576876	571683	584669	600286	624437	667090	703426	779396	732648	630980	538029	15
16	590521	574928	572332	585319	600937	626400	668407	707404	779396	730652	628362	536738	16
17	589871	573630	572332	585970	600937	627708	669724	710720	780737	727992	625746	536092	17
18	589221	572332	572332	585970	601589	629017	670383	714038	782077	725331	623129	534801	18
19	589221	571035	572332	585970	602892	630980	670383	716693	782747	722672	620514	534156	19
20	589221	569738	572981	586620	604196	632945	670383	720679	783418	720014	617900	532865	20
21	589221	569738	572981	587920	605500	634910	670383	724666	783418	716693	614634	532220	21
22	589221	569738	573630	587920	606805	636221	670383	727326	783418	714038	611370	531575	22
23	589221	569738	574279	590521	607457	637531	671042	729322	783418	714038	608761	531575	23
24	589221	569089	574928	590521	608109	638841	671042	731318	783418	707404	605500	531575	24
25	589221	568441	575578	590521	608761	640152	671701	733314	782747	704089	602240	531575	25
26	589221	568441	576227	590521	609413	641464	672361	737309	780737	700777	598332	532865	26
27	589221	568441	577525	591172	610065	642119	673020	740640	779396	697466	594425	534801	27
28	589221	568441	578823	591172	610718	642775	673679	743306	777386	694156	590521	535447	28
29	587920	568441	578823	591172	610718	643431	674339	745973	774707	690848	586620	535447	29
30	586620	568441	579472	591822	610718	646712	674339	748642	772029	687543	583370	536092	30
31	586620	579472	579472	591822	649994	649994	751977	751977	684238	580122	580122	580122	31

Monthly Totals													Yearly Totals
Mean	588,913	577,139	572,501	585,614	601,103	627,255	666,303	708,821	776,162	728,851	629,590	545,008	633,938
Min	536,738	568,441	568,441	579,472	591,822	611,370	653,278	675,657	755,315	684,238	580,122	531,575	531,575
Max	593,123	587,920	579,472	591,822	610,718	649,994	674,339	751,977	783,418	769,353	680,277	576,227	783,418

Notes:

**PacifiCorp
Reservoir Level Records
Bear Lake 2015-2016**

Daily Stage (Ft) Add 5900 for Elevation

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Day
1	10.69	11.46	11.18	11.35	11.54	11.84	12.48	12.82	14.02	14.23	12.89	11.30	1
2	11.55	11.48	11.18	11.36	11.54	11.84	12.50	12.83	14.07	14.19	12.83	11.26	2
3	11.55	11.48	11.18	11.36	11.55	11.85	12.52	12.83	14.11	14.15	12.78	11.21	3
4	11.55	11.48	11.18	11.36	11.57	11.86	12.56	12.84	14.14	14.10	12.72	11.16	4
5	11.55	11.48	11.18	11.36	11.59	11.87	12.58	12.85	14.20	14.06	12.66	11.11	5
6	11.55	11.48	11.18	11.37	11.61	11.88	12.59	12.87	14.24	14.02	12.60	11.07	6
7	11.56	11.46	11.18	11.38	11.63	11.89	12.60	12.90	14.29	13.98	12.54	11.01	7
8	11.56	11.44	11.18	11.39	11.64	11.90	12.61	12.94	14.32	13.94	12.49	10.97	8
9	11.56	11.42	11.18	11.40	11.64	11.91	12.62	12.98	14.34	13.90	12.45	10.93	9
10	11.56	11.42	11.20	11.40	11.65	11.92	12.63	13.02	14.36	13.87	12.40	10.90	10
11	11.56	11.40	11.22	11.41	11.65	11.95	12.64	13.06	14.37	13.83	12.35	10.86	11
12	11.56	11.37	11.23	11.41	11.66	11.97	12.65	13.11	14.38	13.79	12.30	10.82	12
13	11.55	11.34	11.23	11.42	11.66	11.99	12.66	13.16	14.38	13.75	12.25	10.78	13
14	11.54	11.33	11.23	11.42	11.67	12.01	12.67	13.20	14.38	13.71	12.20	10.74	14
15	11.53	11.31	11.23	11.43	11.67	12.04	12.69	13.24	14.38	13.68	12.14	10.71	15
16	11.52	11.28	11.24	11.44	11.68	12.07	12.71	13.30	14.38	13.65	12.10	10.69	16
17	11.51	11.26	11.24	11.45	11.68	12.09	12.73	13.35	14.40	13.61	12.06	10.68	17
18	11.50	11.24	11.24	11.45	11.69	12.11	12.74	13.40	14.42	13.57	12.02	10.66	18
19	11.50	11.22	11.24	11.45	11.71	12.14	12.74	13.44	14.43	13.53	11.98	10.65	19
20	11.50	11.20	11.25	11.46	11.73	12.17	12.74	13.50	14.44	13.49	11.94	10.63	20
21	11.50	11.20	11.25	11.48	11.75	12.20	12.74	13.56	14.44	13.44	11.89	10.62	21
22	11.50	11.20	11.26	11.48	11.77	12.22	12.74	13.60	14.44	13.40	11.84	10.61	22
23	11.50	11.20	11.27	11.52	11.78	12.24	12.75	13.63	14.44	13.40	11.80	10.61	23
24	11.50	11.19	11.28	11.52	11.79	12.26	12.75	13.66	14.44	13.30	11.75	10.61	24
25	11.50	11.18	11.29	11.52	11.80	12.28	12.76	13.69	14.43	13.25	11.70	10.61	25
26	11.50	11.18	11.30	11.52	11.81	12.30	12.77	13.75	14.40	13.20	11.64	10.63	26
27	11.50	11.18	11.32	11.53	11.82	12.31	12.78	13.80	14.38	13.15	11.58	10.66	27
28	11.50	11.18	11.34	11.53	11.83	12.32	12.79	13.84	14.35	13.10	11.52	10.67	28
29	11.48	11.18	11.34	11.53	11.83	12.33	12.80	13.88	14.31	13.05	11.47	10.67	29
30	11.46	11.18	11.35	11.54	11.83	12.38	12.80	13.92	14.27	13.00	11.41	10.68	30
31	11.46	11.35	11.35	11.54	11.83	12.43	12.80	13.97	14.27	12.95	11.36	10.68	31

BEAR LAKE STATISTICS

	Monthly												Yearly
Daily Mean	11.50	11.31	11.24	11.44	11.69	12.08	12.68	13.32	14.33	13.62	12.12	10.82	12.18
Daily Min	10.69	11.18	11.18	11.35	11.54	11.84	12.48	12.82	14.02	12.95	11.36	10.61	10.61
Daily Max	11.56	11.48	11.35	11.54	11.83	12.43	12.80	13.97	14.44	14.23	12.89	11.30	14.44

Notes: Based on lake elevations taken at Utah State Park Marina.



**BEAR LAKE OUTLET CANAL
NEAR PARIS, ID
(10059500)**

STREAMFLOW RECORDS FOR WATER YEAR 2016

LOCATION.--Lat 42°13'00", long 111°20'35" referenced to North American Datum of 1927, in SW ¼ NW ¼ SW ¼ sec.8, T.14 S., R.44 E., Bear Lake County, ID, Hydrologic Unit 16010201, on right bank 2,000 ft downstream from headgates (at dike) and 3 mi southeast of Paris.

PERIOD OF RECORD.--October 2006 to current year published by PacifiCorp. September 1945 to September 2006 published in USGS Water Data Reports. Monthly discharge only January 1922 to September 1945, published in WSP 1314.

GAGE.--Water-stage recorder. Datum of gage is 5,912.6 ft above NGVD of 1929, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 3,080 ft³/s, Jun 19-21, 1986; minimum daily discharge, 1.0 ft³/s, for many days in 1937, 1954, 1959, 1961,

DISCHARGE MEASUREMENT DATES.-- 9-28-15, 11-17-15, 6-3-16, 6-9-16, 6-16-16, 6-22-16, 6-26-16, 7-1-16, 7-3-16, 7-6-16, 7-12-16, 7-20-16, 7-29-16, 8-4-16, 8-11-16, 8-13-16, 8-15-16, 8-20-16, 9-1-16, 9-8-16.

**Bear Lake Outlet Canal near Paris, ID (10059500)
Water Year 2016 (October 2015 to September 2016)**

Daily Mean Values

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
1	76.7	5	5	5	5	5	5	5	5	1570	1500	1010	
2	77.6	5	5	5	5	5	5	5	166	1500	1360	1080	
3	78.3	5	5	5	5	5	5	5	353	1380	1190	1170	
4	73.5	5	5	5	5	5	5	5	350	1370	1180	1160	
5	75	5	5	5	5	5	5	5	351	1280	1180	1160	
6	52.6	5	5	5	5	5	5	5	356	1150	1180	1150	
7	5	5	5	5	5	5	5	5	360	1110	1180	995	
8	5	5	5	5	5	5	5	5	530	1020	1090	811	
9	5	5	5	5	5	5	5	5	745	985	960	814	
10	5	5	5	5	5	5	5	5	739	1000	955	812	
11	5	5	5	5	5	5	5	5	741	1110	949	812	
12	5	5	5	5	5	5	5	5	735	1240	1090	818	
13	5	562	5	5	5	5	5	5	729	1240	1250	817	
14	5	1080	5	5	5	5	5	5	724	1240	1150	623	
15	5	1090	5	5	5	5	5	5	720	1230	999	286	
16	5	1100	5	5	5	5	5	5	727	1230	1000	275	
17	5	1090	5	5	5	5	5	5	737	1230	1000	273	
18	5	572	5	5	5	5	5	5	746	1230	999	274	
19	5	5	5	5	5	5	5	5	763	1320	1090	176	
20	5	5	5	5	5	5	5	5	767	1420	1190	61	
21	5	5	5	5	5	5	5	5	899	1430	1190	79.3	
22	5	5	5	5	5	5	5	5	1070	1440	1190	77.2	
23	5	5	5	5	5	5	5	5	1070	1480	1190	37.6	
24	5	5	5	5	5	5	5	5	1070	1490	1190	5	
25	5	5	5	5	5	5	5	5	1280	1500	1190	5	
26	5	5	5	5	5	5	5	5	1530	1510	1190	5	
27	5	5	5	5	5	5	5	5	1550	1510	1190	5	
28	5	5	5	5	5	5	5	5	1560	1520	1190	5	
29	5	5	5	5	5	5	5	5	1560	1530	1190	5	
30	5	5	5	5	5	5	5	5	1560	1520	1180	5	
31	5	5	5	5	5	5	5	5	1510	1110			
	Monthly Statistics												Yearly Stats
Total	559	5,614	155	155	145	155	150	155	24,493	41,295	35,492	14,806	123,174
Mean	18	187	5	5	5	5	5	5	816	1,330	1,140	494	335
Min	5	5	5	5	5	5	5	5	5	985	949	5	5
Max	78	1,100	5	5	5	5	5	5	1,560	1,570	1,500	1,170	1,570
Ins. Min	5	5	5	5	5	5	5	5	5	978	946	5	5
Ins. Max	85	1,140	5	5	5	5	5	5	1,570	1,570	1,510	1,190	1,570
Ac-ft	1,110	11,140	307	307	288	307	298	307	48,580	81,910	70,400	29,370	244,324

10092700 BEAR RIVER AT IDAHO-UTAH STATE LINE

LOCATION.--Lat 42°00'47", long 111°55'14" referenced to North American Datum of 1927, in NE ¼ NW ¼ NE ¼ sec.29, T.16 S., R.39 E., Franklin County, ID, Hydrologic Unit 16010202, on left bank 1,050 ft downstream from inlet canal to Cub River pumps, 1.1 mi downstream from Weston Creek, 1.8 mi upstream from Idaho-Utah State line, and 3.5 mi southeast of Weston.

PERIOD OF RECORD.--October 1970 to current year.

REVISED RECORDS.--WDR UT-74-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 4,420 ft above NGVD of 1929, from topographic map. Prior to September 10, 1982 at datum 12.00 ft higher. September 10, 1982 to September 30, 1985 at datum 10.0 ft higher.

REMARKS.-- Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by storage reservoirs, power developments, diversions for irrigation, and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,870 ft³/s, Jun 14, 1984, gage height, 19.20 ft, present datum; maximum gage height, 20.25 ft, Jun 21, 1971, present datum; minimum daily discharge, 24 ft³/s, May 16, 2004.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2015-10-01 to 2016-09-30 DAILY MEAN VALUES

[e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	292	346	355	e370	447	591	901	1,050	851	1,000	1,030	844
2	346	361	350	e360	416	563	885	1,040	718	978	1,060	842
3	395	407	340	e350	380	552	919	1,010	527	1,020	1,010	681
4	382	359	e350	e355	500	564	968	996	383	1,010	1,020	676
5	385	353	e355	e360	371	569	1,040	1,020	372	869	837	936
6	425	373	365	e370	447	592	965	1,120	518	1,010	908	892
7	476	408	349	e380	472	701	980	1,030	435	885	863	874
8	493	400	354	e390	487	757	862	1,250	415	723	873	882
9	412	382	383	e390	478	768	947	1,040	380	659	915	843
10	350	392	375	e385	471	841	1,050	1,300	351	671	754	561
11	342	404	371	e380	463	843	997	1,130	398	727	727	582
12	340	370	364	e370	473	853	962	1,160	542	633	635	609
13	343	363	362	e360	477	885	996	1,170	608	616	626	642
14	342	360	367	e380	477	928	1,360	1,080	622	619	693	712
15	342	367	361	e395	490	1,060	1,590	1,110	774	740	863	763
16	341	371	367	e415	543	873	1,440	1,000	551	908	780	522
17	342	374	359	e425	612	866	1,280	954	606	756	639	390
18	344	375	346	e430	705	825	1,160	897	590	748	659	369
19	356	384	381	433	691	705	1,140	891	466	728	638	391
20	356	404	412	437	700	704	1,110	926	460	786	660	447
21	347	415	407	436	679	668	1,120	698	486	852	722	534
22	341	398	415	435	653	652	1,210	733	528	836	846	611
23	341	407	429	427	620	693	1,200	843	531	951	899	1,150
24	357	401	420	421	601	671	1,260	836	584	1,040	784	808
25	350	415	395	434	580	668	1,200	959	585	1,050	918	696
26	344	386	365	430	531	719	1,230	1,100	653	1,020	893	495
27	338	383	e350	418	544	762	1,230	1,100	833	966	875	354
28	338	323	e365	418	567	742	1,180	1,090	861	987	865	338
29	356	314	e380	429	596	887	1,150	1,030	900	996	863	336
30	343	374	e400	448		830	1,060	999	996	983	866	334
31	343		e380	459		807		939		1,000	831	
Total	11,200	11,370	11,570	12,490	15,470	23,140	33,390	31,500	17,520	26,770	25,550	19,110
Mean	361	379	373	403	533	746	1,113	1,016	584	863	824	637
Max	493	415	429	459	705	1060	1590	1300	996	1050	1060	1150
Min	292	314	340	350	371	552	862	698	351	616	626	334
Ac-ft	22,220	22,550	22,950	24,770	30,690	45,900	66,230	62,480	34,760	53,090	50,680	37,910

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2016, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	806	848	858	837	845	1,042	1,262	1,314	1,208	953	880	813
Max	2,849	2,983	2,552	1,904	2,556	3,264	3,594	3,968	4,263	3,442	2,416	2,545
(WY)	(1984)	(1984)	(1985)	(1984)	(1986)	(1986)	(1986)	(1986)	(1986)	(1983)	(1984)	(1986)
Min	224	298	310	269	296	351	351	158	301	368	461	192
(WY)	(2004)	(1993)	(1982)	(2004)	(2002)	(1991)	(2003)	(2003)	(2004)	(2006)	(1993)	(1992)

Figure 2016.17 (cont.)

10109001 COMBINED DISCHARGE, IN CUBIC FEET PER SECOND, OF LOGAN RIVER ABOVE STATE DAM AND LOGAN, HYDE PARK AND SMITHFIELD CANAL NEAR LOGAN, UTAH

REVISED RECORDS.--WDR UT-04-1: Discharge.

**DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR 2015-10-01 to 2016-09-30
DAILY MEAN VALUES**

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	117	97.0	80.0	74.0	86.0	90.0	118	282	661	308	188	144
2	121	97.0	77.0	82.0	76.0	91.0	123	275	663	299	184	144
3	122	99.0	86.0	96.0	87.0	91.0	134	298	667	295	183	144
4	119	96.0	85.0	95.0	82.0	93.0	151	344	696	291	179	145
5	119	95.0	82.0	91.0	86.0	98.0	165	400	729	277	179	143
6	119	95.0	83.0	90.0	83.0	106	164	449	739	271	181	141
7	117	94.0	86.0	89.0	83.0	107	176	550	716	266	180	140
8	114	92.0	89.0	87.0	82.0	103	202	521	699	261	179	138
9	115	93.0	90.0	86.0	82.0	103	219	567	693	258	173	137
10	112	93.0	90.0	86.0	82.0	99.0	258	586	685	257	170	138
11	112	90.0	87.0	78.0	82.0	101	315	510	663	250	171	138
12	110	90.0	84.0	82.0	83.0	105	329	467	629	244	168	138
13	109	89.0	86.0	87.0	84.0	109	356	480	598	240	169	137
14	108	88.0	87.0	89.0	88.0	124	402	539	593	236	168	144
15	107	88.0	85.0	87.0	94.0	111	349	614	560	233	165	142
16	105	87.0	84.0	87.0	96.0	108	302	620	534	230	165	138
17	108	86.0	83.0	87.0	96.0	107	277	606	511	228	162	137
18	111	86.0	85.0	88.0	101	102	266	577	482	224	164	135
19	107	86.0	84.0	86.0	97.0	102	262	583	465	218	162	133
20	106	93.0	87.0	88.0	95.0	103	290	756	446	215	161	131
21	104	85.0	89.0	84.0	92.0	109	332	805	427	212	160	131
22	102	84.0	93.0	85.0	91.0	120	385	725	414	208	157	143
23	102	86.0	88.0	85.0	90.0	118	439	647	397	207	155	153
24	101	87.0	85.0	86.0	88.0	115	463	605	379	206	155	158
25	101	87.0	86.0	84.0	89.0	116	408	579	366	203	154	141
26	99.0	86.0	67.0	79.0	88.0	113	363	561	353	193	153	135
27	100	83.0	65.0	83.0	90.0	113	333	546	337	193	152	134
28	99.0	83.0	81.0	82.0	90.0	118	321	548	328	191	150	131
29	99.0	77.0	87.0	88.0	92.0	123	306	562	321	191	147	132
30	98.0	85.0	87.0	95.0		118	293	605	317	190	144	129
31	97.0		70.0	87.0		117		654		191	144	
Total	3,360	2,677	2,597	2,673	2,555	3,333	8,501	16,860	16,070	7,286	5,122	4,174
Mean	108	89.2	83.8	86.2	88.1	108	283	544	536	235	165	139
Max	122	99.0	93.0	96.0	101	124	463	805	739	308	188	158
Min	97.0	77.0	65.0	74.0	76.0	90.0	118	275	317	190	144	129
Ac-ft	6,664	5,310	5,153	5,302	5,068	6,611	16,860	33,440	31,870	14,449	10,160	8,279

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2016, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	146	130	116	109	106	122	250	588	637	336	209	167
Max	262	221	187	165	205	369	629	1,186	1,465	1,118	477	312
(WY)	(2012)	(2012)	(1984)	(2012)	(1986)	(1986)	(1986)	(1936)	(1986)	(2011)	(2011)	(2011)
Min	74.2	71.9	69.0	63.1	61.6	80.3	111	163	141	103	86.4	79.9
(WY)	(1935)	(1993)	(1993)	(1993)	(1993)	(1942)	(1991)	(1977)	(1934)	(1934)	(1992)	(1934)

Figure 2016.17 (cont.)

10126000 BEAR RIVER NEAR CORINNE, UT

LOCATION.--Lat 41°34'35", long 112°06'00" referenced to North American Datum of 1927, in NE ¼ SE ¼ NE ¼ sec.30, T.10 N., R.2 W., Box Elder County, UT, Hydrologic Unit 16010204, on right bank 1.2 mi downstream from Salt Creek, 2.0 mi northeast of Corinne, and 2.8 mi downstream from Malad River.

DRAINAGE AREA.--7,029 mi².

PERIOD OF RECORD.--October 1949 to September 1957, October 1963 to current year.

REVISED RECORDS.--WRD UT-74-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 4,204.6 ft above NGVD of 1929, unadjusted. Auxiliary nonrecording gage 7,800 ft downstream July 27, 1950 to November 21, 1955.

REMARKS.-- Records good except for estimated daily discharges, which are poor. Natural flow of stream affected by Cutler Dam many miles upstream of gage, power development, diversions for irrigation, and return flow from irrigated areas and backwater from Bear River Bird Refuge about 5 miles downstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,770 ft³/s, May 19, 1984, gage height, 17.50 ft; minimum daily discharge, 23 ft³/s, Jul 30, 2004.

DISCHARGE, CUBIC FEET PER SECOND WATER YEAR 2015-10-01 to 2016-09-30 DAILY MEAN VALUES [e, Value has been estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	226	773	e490	e800	e960	1,530	2,510	2,640	1,630	100	101	162
2	269	987	e520	e780	e1,100	1,780	2,420	2,410	1,680	100	98.3	161
3	338	777	e525	e740	e1,000	1,470	2,190	1,810	1,790	102	99.0	150
4	308	701	e530	e560	e900	1,630	1,990	2,020	1,690	104	99.4	152
5	458	714	e535	e560	e820	1,650	2,000	1,410	1,370	101	101	156
6	551	734	e550	e750	1,280	1,500	1,910	1,180	1,050	99.3	103	153
7	540	689	e620	e920	1,690	1,500	2,300	1,330	655	204	107	151
8	517	734	e630	e750	1,230	1,760	2,250	1,840	560	307	108	155
9	465	769	e650	e680	1,090	2,040	2,070	2,260	834	339	108	155
10	413	767	e620	e775	1,250	1,890	1,930	2,330	1,030	216	105	152
11	423	761	e615	e800	1,400	1,670	2,110	2,540	799	195	107	160
12	348	763	e650	e800	1,250	1,580	2,310	2,580	495	163	109	167
13	323	761	e780	e800	1,220	1,620	2,520	2,400	530	146	107	173
14	368	762	e790	e770	1,290	1,730	2,620	2,160	746	140	108	196
15	388	783	e680	e530	1,270	1,650	2,820	2,020	897	134	109	252
16	396	780	e650	e620	1,220	1,910	3,270	2,030	898	130	109	212
17	392	674	e610	e825	1,230	1,980	3,370	2,060	797	123	109	451
18	408	581	e530	e880	1,430	1,670	3,450	2,130	502	124	107	552
19	427	574	e535	e860	1,700	1,830	3,220	1,990	413	124	106	571
20	448	641	e535	e850	2,200	1,630	2,870	1,910	232	123	106	535
21	471	819	e540	e840	2,150	1,610	2,750	2,000	190	121	109	303
22	495	924	e790	e840	2,030	1,550	2,680	2,300	136	114	112	308
23	519	931	e900	e830	1,950	1,340	2,720	2,280	116	106	111	514
24	503	876	e905	e750	1,800	1,720	2,830	2,320	107	101	100	1,410
25	481	565	e790	e650	1,690	1,500	2,970	2,190	101	99.0	104	1,770
26	475	e500	e770	e680	1,390	1,580	3,190	2,090	98.0	99.0	116	1,650
27	472	e430	e640	e850	1,590	1,540	3,110	2,000	97.4	101	125	1,390
28	466	e410	e660	e810	1,640	1,510	3,060	1,970	96.2	102	137	1,130
29	453	e420	e480	e750	1,470	1,840	3,060	1,950	98.2	99.5	147	762
30	450	e450	e330	e640		1,950	2,840	1,950	98.4	102	153	310
31	438		e570	e790		2,270		1,850		102	156	
Total	13,230	21,050	19,420	23,480	41,240	52,430	79,340	63,949	19,740	4,221	3,477	14,360
Mean	427	702	626	757	1,422	1,691	2,645	2,063	658	136	112	479
Max	551	987	905	920	2200	2270	3450	2640	1790	339	156	1770
Min	226	410	330	530	820	1340	1910	1180	96.2	99.0	98.3	150
Ac-ft	26,240	41,750	38,520	46,570	81,800	104,000	157,400	126,800	39,150	8,372	6,896	28,490

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2016, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1,243	1,482	1,554	1,669	1,712	2,195	2,697	2,712	2,039	642	545	808
Max	4,240	4,471	4,414	3,639	5,966	6,041	7,258	9,598	9,201	4,186	3,045	3,423
(WY)	(1984)	(1985)	(1984)	(1984)	(1986)	(1986)	(1985)	(1984)	(1984)	(1983)	(1983)	(1984)
Min	95.6	621	535	620	723	897	638	71.8	77.6	40.4	46.8	62.2
(WY)	(1993)	(1995)	(1995)	(1993)	(1993)	(2015)	(1992)	(1992)	(1992)	(2003)	(2004)	(1992)