BUREAU OF RECLAMATION

Niobrara, Lower Platte, and Kansas River Basins

Water Year 2020 Summary of Actual Operations
Water Year 2021 Annual Operating Plans

Annual Operating Plans

Norton Dam, Kansas

Nebraska Kansas Area Office
Missouri Basin Region

U.S. Department of the Interior

April 2021

Mission Statements

The Department of the Interior (DOI) conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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Overview

General

This year is the 68th consecutive year that an Annual Operating Plan (AOP) has been prepared for the federally owned dams and reservoirs in the Niobrara, Lower Platte, and Kansas River Basins. The plan has been developed by the Water Operations Group in McCook, Nebraska for the 16 dams and reservoirs that are located in Colorado, Nebraska, and Kansas. These reservoirs, together with nine diversion dams, nine pumping plants, and 20 canal systems, serve approximately 270,078 acres of project lands in Nebraska and Kansas. In addition to irrigation and municipal water, these features serve flood control, recreation, and fish and wildlife purposes. A map at the end of this report shows the location of these features.

The reservoirs in the Niobrara and Lower Platte River Basins are operated by either irrigation or Reclamation districts. The reservoirs in the Kansas River Basin are operated by either Reclamation or the Army Corps of Engineers. Kirwin Irrigation District provides operational and maintenance assistance for Kirwin Dam. The diversion dams, pumping plants, and canal systems are operated by either irrigation or Reclamation districts.

A Supervisory Control and Data Acquisition System (SCADA) located at McCook, Nebraska is used to assist in operational management of all 11 dams under Reclamation's jurisdiction that are located in the Kansas River Basin. A Hydromet system collects and stores near real-time data at selected stations in the Nebraska-Kansas Projects. The data includes water levels in streams, canals, and reservoirs and also gate openings. This data is transmitted to a satellite and downloaded to a Reclamation receiver in Boise, Idaho. The data can then be accessed by anyone interested in monitoring water levels or water usage in an irrigation system. The Nebraska-Kansas projects currently have 60 Hydromet stations that can be accessed. The Nebraska-Kansas Area Office (NKAO) has installed and maintains 41 of these Hydromet stations. These stations can be found on the Internet by accessing Reclamation's Missouri Basin Region Hydromet station codes page at https://www.usbr.gov/gp/hydromet/station_codes_by_state.html.

2020 Summary

Climatic Conditions

Precipitation at the project dams during 2020 ranged from 56 percent of normal at Trenton Dam to 105 percent of normal at Glen Elder Dam. Annual precipitation was below normal for 14 of the 16 project dams.

Temperatures in January were generally above normal, while temperatures in February were typically above normal throughout the project area. Precipitation in January varied from 199 percent of average to 42 percent of average. February precipitation was below average at 12 of the project dams. March

temperature was typically above average, while precipitation was well above normal at the Nebraska dams and much below average in much of Kansas.

Temperatures in April were generally around normal while in May they were generally below normal. Precipitation during April was generally well below average with no project dams above average and twelve below 30 percent of average. May precipitation was below normal at ten of the dams.

Temperatures in July were generally below normal, while temperatures in June and August were typically much higher than normal throughout the project area. Total precipitation for June was generally well below average at all but four project dams. July precipitation was typically well above average at all but two project dams. August precipitation well below normal at all but one of the project dams.

Precipitation recorded in September thru December was well below average at most project dams. September thru December temperatures were generally above normal.

Storage Reservoirs

Conservation Operations: The 2020 inflows at Hugh Butler Reservoir and Enders Reservoir were below the dry-year forecasts. Inflows for Bonny Reservoir and Harry Strunk were between the dry-year and normal-year forecasts. The inflows for Merritt Reservoir and Calamus Reservoir were above wet-year forecasts. The remaining reservoirs were between the normal-year and wet-year forecast

Four of the sixteen reservoirs had below average carryover storage from the 2019 water year. Box Butte and Enders Reservoirs, along with Swanson, Hugh Butler, and Keith Sebelius Lakes did not have sufficient storage to provide water users with a full water supply. Webster, Kirwin, and Lovewell Reservoirs, and Harry Strunk, Harlan County and Waconda Lakes utilized some flood pool storage during the year. Irrigation demands greatly reduced the storage in several project reservoirs throughout the summer. Reservoir storage was below average at ten of the sixteen reservoirs at the end of the 2020 water year.

On September 20, 2011, the State of Colorado ordered that Bonny Reservoir be drained for Republican River Compact compliance. All of the water in Bonny Reservoir was evacuated by the end of May 2012 and no storage has been recorded since. The State of Colorado order remains in effect and inflows continue to be bypassed.

Table 1 shows a comparison of 2019 and 2020 carry-over storage conditions for all reservoirs in the Niobrara, Lower Platte, and Kansas River Basins as of September 30, 2020.

Table 1 Summary of Carry-over Storage at NKAO Facilities.

Reservoir/Lake	September 30, 2020 Storage (AF)	September 30, 2019 Storage (AF)	Change (AF)
Bonny	0	0	0
Swanson	55,847	58,703	-2,856
Enders	8,681	9,674	-993
Hugh Butler	17,937	21,499	-3,562
Harry Strunk	18,016	31,822	-13,806
Keith Sebelius	21,564	25,245	-3,681
Harlan County	278,630	442,997	-164,367
Lovewell	28,229	11,421	16,808
Kirwin	87,855	117,278	-29,423
Webster	66,539	104,186	-37,647
Cedar Bluff	109,924	109,085	839
Waconda	229,249	264,143	-34,894
Box Butte	11,782	17,705	-5,923
Merritt	53,629	61,100	-7471
Calamus	71,102	86,211	-15,109
Davis Creek	13,508	13,148	360

Flood Control Operations: Lovewell, Kirwin, and Webster Reservoirs, and Waconda, Harry Strunk, and Harlan County Lakes utilized flood pool storage in 2020. Flood releases from Lovewell Reservoir totaled approximately 13,000 AF from late-July through the beginning of August. Flood releases from Webster Reservoir totaled nearly 32,000 AF and occurred throughout the spring until irrigation releases started in June. Waconda Lake flood releases totaled nearly 155,600 AF and occurred throughout the extent of the year. Flood releases from Kirwin Reservoir during late-May and mid-June totaled 3,000 AF. All flood pool storage at Medicine Creek Dam was utilized for irrigation and no flood releases were made. Harlan County Dam flood releases totaled nearly 85,500 AF and occurred throughout the spring until irrigation releases started in June.

The water year 2020 flood damages prevented by the operation of Reclamation's Nebraska-Kansas Projects facilities was $4,474,300 as determined by the Corps of Engineers. An additional benefit of $193,800 was credited to Harlan County Lake. The accumulative total of flood control benefits for the years 1951 through 2020 by facilities in this report total $3,001,837,200. Box Butte, Merritt, Calamus, and Davis Creek Reservoirs do not have a designated flood pool and have not accrued any flood benefits to date. Flood control benefits attributed to each project are shown in Table 2 on the following page.

Table 2 Flood damages prevented by Nebraska-Kansas Project Reservoirs.

Reservoir	During FY 2020	Prior to 2020	Accumulated Total
Bonny	$100	$2,870,800	$2,870,900
Enders	$0	$3,618,500	$3,618,500
Swanson	$46,500	$51,480,300	$51,526,800
Hugh Butler	$400	$13,489,500	$13,489,900
Harry Strunk	$800	$26,967,800	$26,968,600
Keith Sebelius	$100	$11,597,500	$11,597,600
Harlan County	$193,800	$396,279,300	$396,473,100
Lovewell	$622,300	$236,795,500	$237,417,800
Kirwin	$224,100	$195,829,800	$196,053,900
Webster	$57,600	$164,604,600	$164,662,200
Waconda	$1,798,500	$1,709,218,000	$1,711,016,500
Cedar Bluff	$1,723,900	$184,417,500	$186,141,400
Total	**$4,668,100**	**$2,997,169,100**	**$3,001,837,200**

Note: Accumulated totals from 1951 through 2020. The reservoirs upstream of Harlan County Lake did not receive benefits for damages prevented from 1972 to 1993. Total construction costs of storage dams were $208,954,130.

A summary of precipitation, reservoir storage and inflows at the facilities of the Nebraska-Kansas Projects during 2020 can be found in Table 4.

Water Service

There was 353,116 AF of water diverted to irrigate approximately 218,166 acres of project lands in the 12 irrigation districts. The project water supply was either inadequate or limited for 84,320 acres of the total project lands. This includes lands in Mirage Flats, Frenchman Valley, H&RW, Frenchman-Cambridge, and Almena Irrigation Districts. The project water supplies for the other units mentioned in this report were adequate in 2020.

The water requirements of three municipalities, one rural water district, and two fish hatchery facilities were met in 2020. Both storage releases and natural flows are utilized in meeting these demands.

Fish and Wildlife and Recreation Benefits

The National Recreational Fisheries Policy declares that the Government's vested stewardship responsibilities must work in concert with the state managing agency's recreational fisheries constituency and the general public to conserve, restore, and enhance recreational fisheries and their habitats. The NKAO is available for meetings if requested with Nebraska, Colorado, and Kansas state management agencies to discuss the AOP. Information is solicited from the agencies to enhance fisheries resources within the flexibility allowed while still meeting contractual obligations with the various irrigation districts.

Reservoir operations were favorable for recreation and fish and wildlife uses in 2020 at those project reservoirs with full or nearly full conservation pools prior to the irrigation season. The higher water levels experienced early in the year submerged existing shoreline vegetation. Normal irrigation demands and the lack of precipitation during the summer greatly reduced the pool levels at several reservoirs allowing for late summer shoreline revegetation. The draining of Bonny Reservoir and the State administration of storage rights in southwest Nebraska reservoirs in previous years diminished recreation benefits at these facilities.

2021 Outlook

Three forecast conditions have been developed for each of the reservoirs in the Niobrara, Lower Platte, and Kansas River Basins conforming to an established operating criteria under various reservoir inflow conditions. These operation studies are included starting in Table 24. The municipal and rural water district water supply requirements will be met under all three inflow forecast conditions for all units.

Under reasonable minimum inflow forecast conditions, irrigation districts receiving storage water from the following lakes and reservoirs are expected to receive less than a full supply: Box Butte, Enders, Swanson, Hugh Butler, Harry Strunk, and Keith Sebelius. The irrigation districts affected are Mirage Flats; Frenchman Valley and H&RW; Frenchman - Cambridge; and Almena; respectively. If 2021 is a dry year, 84,302 acres of the total 270,078 acres with service available to be irrigated (31 percent) will have an inadequate water supply.

Under most probable inflow conditions, it is expected that Mirage Flats, Frenchman Valley, H&RW, and Almena Irrigation Districts would experience some shortages to irrigation demands from Box Butte Reservoir, Enders Reservoir, and Keith Sebelius Lake. Most irrigators in these districts plan to use water from private wells to supplement the project water supply.

Even under reasonable maximum inflow conditions, Frenchman Valley and H&RW Irrigation Districts are expected to experience irrigation demand shortages from Enders Reservoir.

Under reasonable minimum inflow conditions, the conservation pools at Merritt, Calamus, Davis Creek, and Lovewell Reservoirs, and Waconda and Harry Strunk Lakes are expected to fill during 2021.

Water is not expected to be stored in Bonny Reservoir during 2021 as the State of Colorado's order to bypass all inflows remains in effect. Bonny Reservoir was drained in 2012 by order of the State of Colorado to assist in meeting Republican River Compact compliance.

Chapter I – Introduction

Purpose of This Report

This AOP advises water users, cooperating agencies, and other interested groups or persons of the actual operations during 2020 and serves as a guideline for the 2021 operations. This report also describes the responsibilities of Reclamation, the Army Corps of Engineers (Corps of Engineers), and the irrigation and Reclamation districts in the Niobrara, Lower Platte, and Kansas River Basins.

Operational Responsibilities

Reclamation is responsible for irrigation operations at all federal reservoirs in the Nebraska-Kansas Projects. Reclamation is also responsible for the operation and maintenance (O&M), safety of the structure, and reservoir operations not specifically associated with regulation of the flood control storage at the reservoirs constructed by Reclamation. Regulation of the flood control storage is the responsibility of the Corps of Engineers. In addition to irrigation and flood control, these reservoirs provide recreation, fish and wildlife, and municipal water supply benefits.

By contractual arrangements with Reclamation, the irrigation or Reclamation districts in the Niobrara, Lower Platte, and Kansas River Basins are responsible for the O&M of the canals and irrigation distribution facilities constructed or rehabilitated by Reclamation. In addition, the appropriate irrigation or Reclamation districts are responsible for operating and maintaining Box Butte, Merritt, Virginia Smith and Davis Creek Dams. The Corps of Engineers operates and maintains Harlan County Dam and Lake. The State of Colorado provides operational guidelines for Bonny Reservoir. Operational guidelines for Cedar Bluff Reservoir are provided by the State of Kansas. Reclamation operates and maintains eleven dams and reservoirs in the Republican, Solomon, and Smoky Hill River Basins. Under a contract with Reclamation, Kirwin Irrigation District performs certain operational and maintenance functions at Kirwin Dam.

An updated Field Working Agreement was executed on July 17, 2001 between the Corps of Engineers and Reclamation regarding operation of Harlan County Dam and Lake. The agreement provides for a sharing of the decreasing water supply into Harlan County Lake. Storage capacity allocations were redefined based on the 2000 sediment survey and a procedure was established for sharing the reduced inflow and summer evaporation among the various lake uses.

The States of Nebraska, Colorado, and Kansas are responsible for the administration and enforcement of their state laws pertaining to the water rights and priorities of all parties concerned with the use of water. As provided by the lease agreement between Reclamation and the states, the states are responsible for administering the water surface activities and the federal lands around the reservoirs. The U.S. Fish and Wildlife Service administer the water surface activities and most of the federal lands at Kirwin Reservoir.

Reclamation cooperates with all state agencies and compact commissions to ensure that all operations are in compliance with state laws and compact requirements.

Water Supply

For forecasting purposes, values of annual inflows were selected that statistically should be met or exceeded 10, 50, and 90 percent of the time to represent the reasonable maximum (wet-year), most probable (normal-year), and reasonable minimum (dry-year) inflow conditions, respectively.

Inflow records from 2001 through 2020 were used for the analysis of reservoirs in the Niobrara, Lower Platte and Kansas River Basins.

Reservoir Operations

All operations are scheduled for optimum benefits of the authorized project functions. Monthly, or as often as runoff and weather conditions dictate, Reclamation evaluates the carry-over storage and estimated inflow at each reservoir to determine whether excess water is anticipated. If excess inflow is apparent, controlled releases will be made to maximize the downstream benefits.

Major Features

The Mirage Flats Project was constructed under the Water Conservation and Utilization Act and includes an irrigation storage reservoir, diversion dam, and canal system. The other features discussed in this report are all a part of the Pick-Sloan Missouri Basin Program and include single and multipurpose reservoirs, diversion dams, pump stations and canal systems. The sixteen storage facilities now in operation are listed below.

Constructed by Reclamation

Operated by irrigation or Reclamation districts: Box Butte and Merritt Dams in the Niobrara River Basin and Virginia Smith and Davis Creek Dams in the Lower Platte River Basin.

Operated by Reclamation: Bonny, Trenton, Enders, Red Willow, Medicine Creek, Norton, Lovewell, Kirwin, Webster, Glen Elder, and Cedar Bluff Dams in the Kansas River Basin. A contract provides for Kirwin Irrigation District to perform certain operational and maintenance functions at Kirwin Dam.

Constructed and Operated by the Corps of Engineers

Harlan County Dam in the Kansas River Basin.

Irrigation and Reclamation Districts

Twelve irrigation districts and one Reclamation district in the Niobrara, Lower Platte, and Kansas River Basins have contracted with Reclamation for water supply and irrigation facilities. The Twin Loups Irrigation District has contracted their O&M responsibilities to the Twin Loups Reclamation District. Bostwick Irrigation District in Nebraska has contracted their O&M responsibilities for Superior-Courtland Diversion Dam and the Courtland Canal between the head gates and the Nebraska-Kansas state line to Kansas Bostwick Irrigation District.

The contracted irrigation season for Mirage Flats Irrigation District is April through September. The contracted irrigation season for Frenchman-Cambridge Irrigation District is April 15 through October 15 or such additional period from April 1 to April 15 of each year as may be agreed upon between the District and Reclamation. The contracted irrigation season for Frenchman Valley and H&RW Irrigation Districts is from May 1 through October 15 or such additional period from April 1 through May 1 of each year as determined between the district and Reclamation. The contracted irrigation season for Twin Loups Reclamation District, Bostwick in Nebraska, and Kansas Bostwick Irrigation Districts is May 1 through September 30 or such additional period from April 1 through November 15 of each year as determined between the district and Reclamation. For Ainsworth, Kirwin and Webster Irrigation Districts, the contracted irrigation season is from May 1 through September 30. The Almena Irrigation District the contracted irrigation season is from February 1 through September 30.

Municipal Water

Three municipalities in Kansas (Norton, Russell, and Beloit) and one rural water district in Kansas (Mitchell County Rural Water District No. 2) have executed water service contracts or repayment contracts for full or supplemental water supplies.

Fish and Wildlife

The Calamus Fish Hatchery is located below Virginia Smith Dam and Calamus Reservoir. The hatchery is operated and maintained by the Nebraska Game and Parks Commission (Commission). The water supply is provided by natural flows passed through Virginia Smith Dam and from Calamus Reservoir storage through an agreement dated July 28, 1988, between the Commission and the Twin Loups Reclamation District.

The State of Kansas operates and maintains the fish hatchery facility below Cedar Bluff Reservoir.

State of Colorado Division of Wildlife

The State of Colorado provides operational guidelines for Bonny Reservoir. The entire conservation pool storage was purchased by the State of Colorado on June 24, 1982.

State of Kansas Department of Wildlife, Parks and Tourism (KDWPT)

The State of Kansas acquired the use and control of portions of the conservation capacity at Cedar Bluff Reservoir following the reformulation of the Cedar Bluff Unit in October of 1992. The City of Russell's existing water storage right and contract with the United States remained unchanged.

Power Interference Considerations

A Power Interference Agreement exists between Reclamation, the Twin Loups Reclamation District, and the Loup River Public Power District. This agreement expired in 2020. Subordination Agreements also exist between Reclamation, the Ainsworth Irrigation District, and the Nebraska Public Power District and between Reclamation, the Mirage Flats Irrigation District and the Nebraska Public Power District. Provisions of these agreements will be incorporated into the 2021 operations.

Environmental Considerations

A "Statement of Operational Objectives" for Harlan County Lake sets forth the general operational objectives and the specific reservoir uses that are desirable. The operational objectives indicate that fish and wildlife interests are best served by high reservoir levels with minimum fluctuations, and regulation of the outflow in excess of the minimum desired flows. Although the statement recognizes flood control and irrigation as primary purposes, it indicates that comprehensive operational plans should be developed for maximum integration of the secondary uses.

These operational objectives are also considered in the operation of all Reclamation reservoirs in the Kansas River Basin, Niobrara River Basin, and the Lower Platte River Basin. The regulated outflow can also benefit farmers, ranchers, cities, and other interests below the reservoirs.

Republican River Compact – Kansas v. Nebraska

On May 26, 1998, Kansas filed a petition with the U. S. Supreme Court stating that Nebraska had violated the Republican River Compact by using more than its share of the Republican River water supply. The three original parties to the Compact; Kansas, Nebraska and Colorado, became parties to the case. Because the major water development structures in the Republican River Basin were constructed by the Bureau of Reclamation and the Corps of Engineers, the United States was allowed to participate as *amicus curiae.* After seventeen months of negotiations, the Final Settlement Stipulation (Stipulation) was signed by each respective governor and attorney general and was filed with the Special Master on December 16, 2002. The United States Supreme Court approved the settlement and dismissed the case on May 19, 2003.

In the dry period 2005-2006, Nebraska overused its Compact-allotted share of the Republican River. In 2010, Kansas again filed suit in the U.S. Supreme Court. In 2015 the Supreme Court found that

Nebraska had violated the Compact and required it to pay Kansas $5.5 Million in damages and to take additional action to ensure compliance.

After Kansas's 2010 filing, Nebraska took additional actions to achieve compliance including developing two augmentation projects to enhance flows in the River, offsetting overuse. Colorado also developed an augmentation project during this period to offset its overuse.

After more than two years of negotiations among the States, the Republican River Compact Administration (RRCA) approved two resolutions on August 24, 2016 establishing long-term agreements among Kansas, Colorado and Nebraska related to Colorado's and Nebraska's compliance activities in the Republican River basin.

Water-Short Year Administration will be in effect in those years in which the projected or actual irrigation supply is less than 119,000 AF of storage available for use from Harlan County Lake as determined by Reclamation. It was determined that Water Short Year Administration would not be in effect in 2020.

Chapter II - Niobrara and Lower Platte River Basins

Mirage Flats Project in Nebraska

General

Flows in the Niobrara River along with Box Butte Reservoir storage provide a water supply for the 11,662-acre Mirage Flats Project. Many irrigators supplement their water supply with private wells.

The Mirage Flats Irrigation District cooperates with the Commission by operating the Box Butte Dam outlet works gate and the Dunlap Diversion Dam gates in a manner to avoid sudden large changes in the flows of the Niobrara River. A 30-year agreement was made in 1990 between the district and the Commission whereby the district would not draw the reservoir water level below elevation 3978.00 feet (2,026 AF). In return, the district received an up-front payment which was used to improve the efficiency of the project's delivery system. On March 17, 2000, the district agreed to increase the minimum reservoir level by one additional foot to elevation 3,979.00 feet (2,392 AF). In return, the district received an additional payment from the Commission for the 20 years left on the original agreement. The agreement expired in 2020.

A data collection platform was installed in May of 1992 to monitor the reservoir elevation and outflow at Box Butte Dam. A telephone (primary communication system) and a radio (backup communication system) have been installed at the outlet works for contacting the Region 23 Emergency Management Agency.

2020 Summary

The flows of the Niobrara River plus the carry-over storage in Box Butte Reservoir were not adequate to provide a full water supply for the project lands. Precipitation in the Mirage Flats Irrigation District totaled 12.64 inches, which is 73 percent of normal. The 2020 total inflow of 16,289 AF was between the most-probable and wet-year forecast.

The reservoir level began the year at elevation 4,002.15 feet (4.5 feet below the top of conservation). Irrigation releases began on June 14 and ended on August 30. The reservoir peaked at elevation 4,006.25 (0.7 feet below top of conservation) on May 28. This was the highest reservoir elevation observed since 1952. Diversions of 17,499 AF to the Mirage Flats Canal provided irrigation water for approximately 9,340 acres. The farm deliveries from the project water supply totaled 8,895 AF (0.95 acre-foot per irrigated acre), which is a delivery efficiency of 51 percent. Total reservoir storage was 14,856 AF at the end of the irrigation season. Privately owned irrigation wells supplemented the project water supply. The reservoir level at the end of the year was 3,996.45 feet (10.6 feet below the top of conservation). A daily plot of the reservoir elevation is shown in Figure 1.

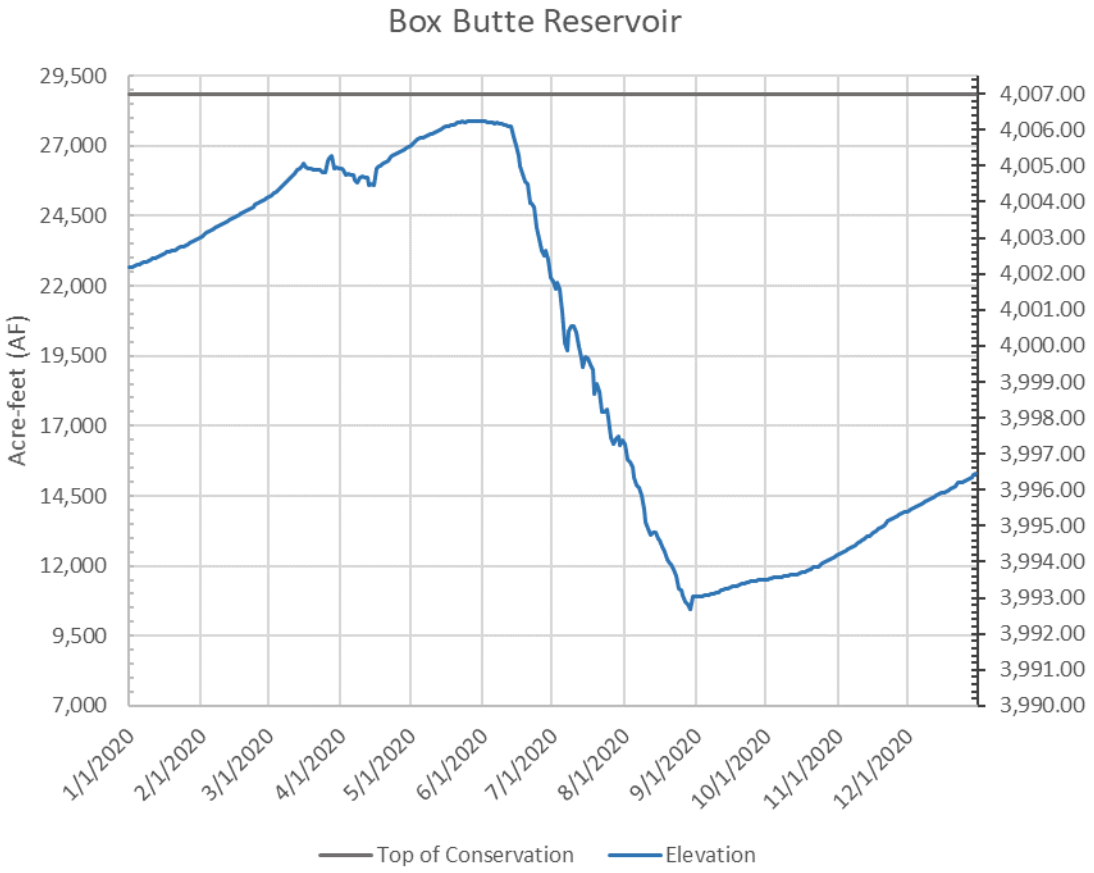


Figure 1 Box Butte Reservoir Elevation and Content.

2021 Outlook

The project water supply is expected to be inadequate in 2021 as it has been since the early 1960's, but based on statistical reasonable maximum inflow supplies will be adequate. In the spring, the district will inform their water users of the amount of water that will be available from storage in Box Butte Reservoir. It is anticipated that district irrigators will continue to use their privately-owned irrigation wells as a supplemental supply.

Ainsworth Unit, Sandhills Division in Nebraska

General

Within the Ainsworth Irrigation District, there are approximately 35,000 acres with available service. The project water supply is provided by Snake River flows and Merritt Reservoir storage. The reservoir is filled to elevation 2,944.0 feet each fall after the irrigation season. This level is approximately two feet below the top of conservation capacity and within the repaired area of soil cement on the upstream face of the dam. The reservoir is regulated to maintain this level until the ice clears each spring. Maintaining the reservoir at this elevation during the winter will help avoid ice damage to the older existing soil cement at lower elevations. Upon ice-out, the outlet pipe is drained, inspected, and repaired as necessary. The reservoir is then rapidly filled to elevation 2,946.0 feet to reduce shoreline

erosion around the reservoir and minimize sand accumulations on the face of the dam. This filling process generally takes place in April. The reservoir level is maintained until irrigation releases begin to draw on the pool around mid-May. Seepage, pickup and toe drain flow normally result in flows of up to 15 cubic feet per second (cfs) below Merritt Dam.

Reclamation has executed a Memorandum of Agreement (MOA) between Reclamation, the Commission and the Ainsworth Irrigation District for Snake River releases below Merritt Dam. The purpose of this MOA is to establish the protocol that will be used to make future releases of water from Merritt Dam to the lower Snake River. The development of the MOA was an environmental commitment outlined in the Ainsworth Irrigation District Final Environmental Assessment for the conversion of a Long-Term Water Service Contract to a Repayment Contract (December 2006). Release criteria will be based on the best available scientific data to determine when local conditions warrant releases to the Snake River. When it becomes necessary to release water from Merritt Reservoir, Reclamation will direct the Ainsworth Irrigation District to make the necessary releases to the river. Changes to the river will be staged to allow fish and other aquatic organisms time to acclimate to the changing environment.

2020 Summary

Precipitation, as recorded near Merritt Dam, totaled 21.99 inches, which was 103 percent of normal. The total yearly inflow of 229,555 AF was above the wet-year forecast. The reservoir level at the beginning of the year was at elevation 2943.70 feet. The water supply was more than adequate to meet the project's irrigation requirement. There were 67,719 AF diverted from Merritt Reservoir into Ainsworth Canal, with 33,509 AF delivered to the farm head gates (delivery efficiency of 50 percent). There were 34,626 acres of land irrigated in 2020. The reservoir elevation at the end of 2020 was 2944.00 feet.

The district provided a total of 322 AF of irrigation water from holding ponds located within the district's service area.

In early 2018, the Great Plains Regional Drill crew, the Technical Service Center, and Nebraska Kansas Area Office personnel completed grouting of the spillway and river outlet works underdrain systems. The post grouting monitoring of the facility noted sand emanating from the right drain outfall for the spillway chute drain system. Weir plates were installed on both outfalls to monitor the sand accumulation. Six well points were also installed around the basin to provide additional ground water level monitoring. Subsequently, a Risk Reduction Verification Decision Document was completed and indicated that there is justification for further action to evaluate the migration of material through the right spillway chute drain outfall.

2021 Outlook

During the winter months, the reservoir will be regulated to maintain elevation 2,944.0 feet (2.0 feet below the top of conservation capacity). In order to alleviate erosive action to the lands around the reservoir and to maximize all benefits associated with the reservoir, releases from Merritt Reservoir will be regulated to fill the conservation capacity during the early spring. This filling generally takes place during April. If weather conditions or irrigation demands dictate, it may be necessary to begin filling the reservoir prior to this time. This reservoir level will be maintained until irrigation releases

begin dropping the pool level. Following the irrigation season the reservoir will begin to refill to elevation 2,944.0 feet. A release of 50 cfs will be made to the Snake River beginning around the second week of October and will continue until the reservoir reaches the desired winter elevation. The water supply is expected to be adequate in 2021 for the irrigation of 35,000 acres.

North Loup Division in Nebraska

General

The North Loup Division is located in the Loup River drainage basin. Water is diverted from both the Calamus and North Loup Rivers for the irrigation of approximately 55,100 acres of project lands. Operation of the division also provides a sustained groundwater supply for an additional 17,000 acres. Principal features of the division include Virginia Smith Dam and Calamus Reservoir, Calamus Fish Hatchery, Kent Diversion Dam, Davis Creek Dam and Reservoir, five principal canals, one major and one small pumping plant and numerous open ditch and buried pipe laterals.

Calamus Reservoir is normally regulated at three to four feet below the top of conservation capacity during the winter months. Maintaining the reservoir at this elevation during the winter helps avoid ice damage to the soil cement on the upstream face of the dam. After the ice clears in the spring, the reservoir is filled to conservation capacity. The North Loup Division project operation is restricted to zero water diversions from the Calamus and North Loup Rivers during the months of July and August, and also during the month of September whenever sufficient water is available in the storage reservoirs to deliver full water demands. During this time, inflows to Calamus Reservoir are required to be bypassed under the Power Interference Agreement between Reclamation, the Twin Loups Reclamation District, and the Loup River Public Power District and as required in the authorizing legislation. The contract expired October 31, 2020.

Davis Creek Reservoir level is typically maintained at an average elevation of 2,048.0 feet from the end of the irrigation season through the winter months. Off season seepage and evaporation has historically resulted in a reservoir drawdown of 2.5 to 3.0 feet requiring an end of September reservoir level of 2050.0 feet or less. This carry-over elevation provides a minimal recreational pool while reducing increases in groundwater storage due to reservoir seepage. The reservoir is filled by the Mirdan Canal starting in April and will generally reach full content by the end of June. A 160-acre recreation area adjoining the reservoir continues to be managed by the Lower Loup Natural Resources District. The area includes a boat ramp, a handicapped accessible fishing pier, a day-use area, a primitive camping area, shelter and a hiking path. Public lands adjoining Kent Diversion Dam are managed by the Commission and are also open to day-use fishing with handicapped accessibility provided.

2020 Summary

Precipitation at Virginia Smith Dam was 19.42 inches which is 77 percent of normal for the year. The inflow totaled 367,867 AF which was above the wet-year forecast as well as the second largest since dam completion. The reservoir level at the first of the year was elevation 2,235.51 feet (8.5 feet below the top of conservation). The conservation pool filled on May 9. The water supply was more than adequate for the district's needs. There were 111,601 AF of water released into Mirdan Canal for district use and 3,601 AF diverted through Kent Canal from the North Loup River. A total of 43,603

AF was diverted for district use above Davis Creek Reservoir. The farm head gate delivery was 24,210 AF which is a delivery efficiency of 56 percent. Land irrigated in 2020 totaled 34,110 acres above Davis Creek Reservoir. The Calamus Fish Hatchery used bypassed natural flows and storage from the reservoir totaling 2,290 AF. Calamus Reservoir inflows were bypassed during July, August, and September as required. The elevation at the end of the year was 2,239.17 feet.

The precipitation total of 20.23 inches near Davis Creek Dam was 78 percent of normal. Inflow to Davis Creek Reservoir totaled 57,433 AF during 2020. The reservoir elevation at the first of the year was 2,054.52 feet, 21.5 feet below the top of conservation. Beginning in mid-April, Davis Creek Reservoir was filled to a peak elevation of 2,071.29 feet on June 23 using diversions from Calamus Reservoir and the North Loup River. A release of 49,040 AF was made from Davis Creek Dam into Fullerton Canal, with 22,002 AF delivered to the farm head gates which is a 45 percent delivery efficiency. There were 21,016 acres irrigated below Davis Creek Reservoir. Following the irrigation season, the reservoir level was maintained and wintered approximately eight feet higher than normal at the request of the district for a three-year study period. The reservoir elevation at the end of 2020 was 2,054.57 feet, 21.4 feet below the top of conservation.

2021 Outlook

Filling of Calamus Reservoir will continue through late winter and early spring. The reservoir will be allowed to fill to an elevation of 2,244.0 feet (top of conservation capacity) in late March or April. This reservoir level will be maintained in order to minimize shoreline erosion until demands begin to draw on the reservoir. In the fall the reservoir will be filled to an elevation of approximately 2,240.0 feet, if possible.

Water will be available for all irrigable acres with service from the Mirdan, Geranium and Scotia Canals and Lateral Systems. It is estimated that approximately 34,000 acres will be irrigated from these canals. Water supplies will be sufficient to meet the full dry-year requirements.

Filling of Davis Creek Reservoir will take place this spring with flows diverted from the North Loup River at Kent Division Dam and transported through Kent and Mirdan Canals. Storage water can also be transferred from Calamus Reservoir into Davis Creek Reservoir during the summer months through the Mirdan Canal. Water will be sufficient to irrigate an estimated 21,000 acres from Elba and Fullerton Canals under all inflow forecast conditions. The reservoir level will be regulated to eight feet above normal winter levels as part of an ongoing groundwater study.

Requirements for the fish hatchery will be met in full in 2021.

Chapter III - Republican River Basin

Armel Unit, Upper Republican Division in Colorado

General

Normal reservoir operations for Bonny Reservoir have historically been for recreation and fish and wildlife support, although water has been available for water right administration and irrigation purposes.

Bonny Reservoir inflows from the South Fork of the Republican River and Landsman Creek are released into Hale Ditch as requested by the Colorado State Engineer. The state can utilize Bonny Reservoir storage water for Hale Ditch and other natural flow appropriators under short-term water service contracts. Most of the 700 acres served by Hale Ditch are now owned and operated by the Division of Wildlife, Colorado Department of Natural Resources.

The historic operation pattern of Bonny Reservoir enhanced the spring fish spawn and provided excellent fishing opportunities during the summer and hunting conditions each fall. In September of 2011, the State of Colorado ordered all storage water evacuated from Bonny Reservoir for Republican River Compact compliance. As a result, the reservoir fishery was decimated, and future operations are unlikely to provide fishing opportunities unless water is returned to the reservoir.

2020 Summary

The annual precipitation total of 11.90 inches at Bonny Dam was 67 percent of average. The annual computed inflow of 3,772 AF to Bonny Reservoir was between the dry-year and normal-year forecasts. Bonny Reservoir remains drained, and inflows continue to be bypassed for the purpose of compact compliance.

As directed by the Colorado State Water Commissioner, water was bypassed through the reservoir into the South Fork Republican River as ordered by the Colorado State Engineer for compact compliance. No water was diverted into Hale Ditch in 2020.

2021 Outlook

The State of Colorado's order to release all of the storage in Bonny Reservoir for Republican River Compact compliance remains in effect. If the order continues throughout 2021, water will not be available in the reservoir for irrigation or fishery purposes.

The Colorado State Water Commissioner is expected to direct that water be bypassed into the South Fork Republican River again in 2021.

Frenchman Unit, Frenchman-Cambridge Division in Nebraska

General

The Culbertson Canal and the Culbertson Extension Canal systems serve 9,292 acres in the Frenchman Valley Irrigation District and 11,915 acres in the H&RW Irrigation District. The water supply for these lands is furnished by flows from Frenchman and Stinking Water Creeks and off-season storage in Enders Reservoir located on Frenchman Creek, a tributary of the Republican River in southwest Nebraska. Irrigation releases are conveyed via Frenchman Creek from Enders Reservoir to Culbertson Diversion Dam. Reclamation historically maintained and cleared this section of Frenchman Creek prior to irrigation releases each spring.

The normal operation of Enders Reservoir, with the gradual rise in water surface during the spring months, provides desirable fish spawning conditions. Irrigation releases normally deplete the conservation storage by late summer, thereby limiting the fishing and recreational usage. Due to extremely low storage levels, irrigation releases have not been made from Enders Reservoir since 2003.

Annual reservoir inflows have steadily declined from around 61,000 AF when Enders Dam was constructed to only 5,000 AF in recent years. Extensive groundwater pumping from upstream well development along with various conservation practices have resulted in the depletion of inflows. The conservation pool has not filled since 1968.

2020 Summary

The annual precipitation total of 11.95 inches at Enders Dam was 62 percent of normal. The 2020 inflow into Enders Reservoir of 3,733 AF was below the dry-year forecasts. The reservoir level began the year at a level of 28.6 feet (3,083.70 feet) below the top of conservation. This was the fourth lowest level ever recorded on the first of January since initial filling. The reservoir level increased gradually during the spring to a peak elevation of 3,084.74 feet on May 17.

Evaporation decreased the reservoir level from June through mid-November reaching elevation 3,081.62 feet on November 16. Due to the extremely low water supply available, no water was released from Enders Reservoir during the irrigation season. The end of the year reservoir level was 30.4 feet (3,081.93 feet) below the top of conservation. This was the second lowest end of year level recorded since initial filling. A daily plot of the reservoir elevation is shown in Figure 2.

The Frenchman Valley Irrigation District diverted 6,722 AF of natural flow from Frenchman Creek in 2020. The district reports that approximately 435 acres received 257 AF of water. Farm delivery averaged about 7 inches per irrigated acre in the irrigation district. Several farmers supplemented their water supply with private irrigation wells. The H&RW Irrigation District did not divert water into Culbertson Extension Canal in 2020. This was the eighteenth consecutive year that the district did not deliver water.

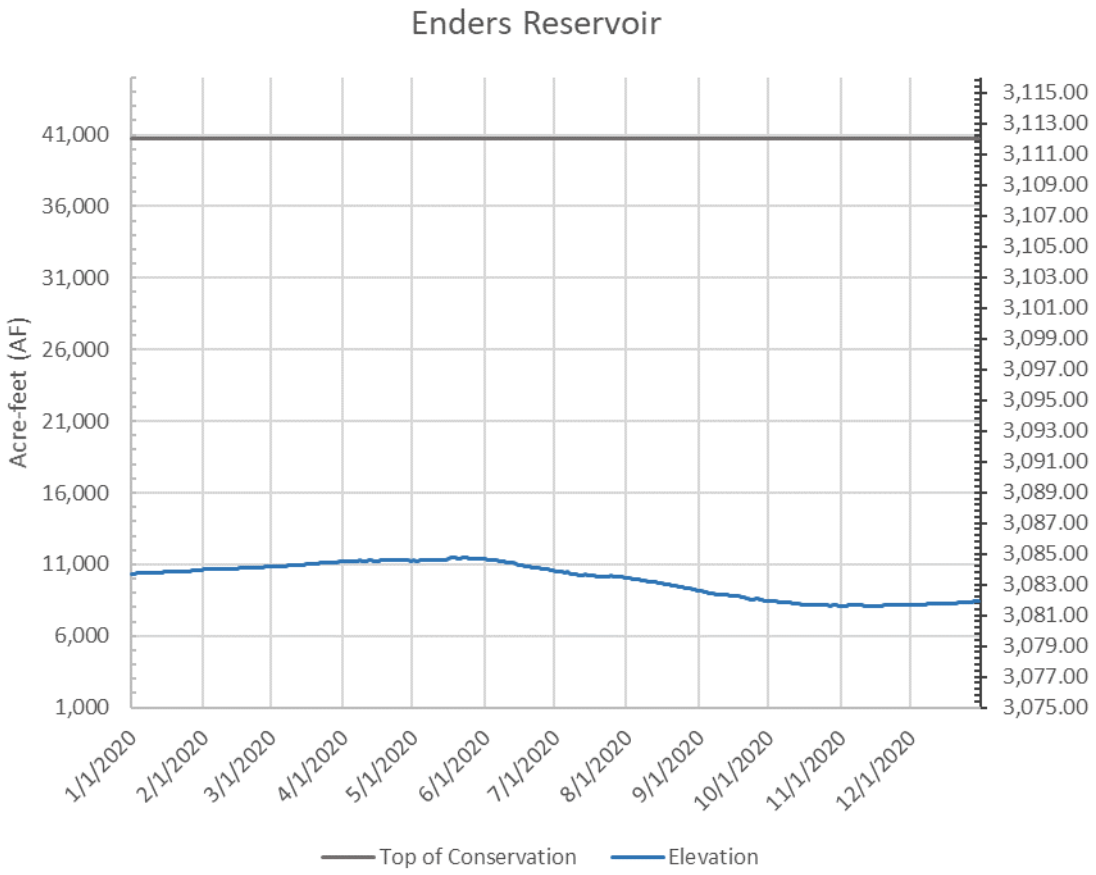


Figure 2 Enders Reservoir Elevation and Content.

2021 Outlook

The fall and early winter inflows into Enders Reservoir were near the dry-year forecast. If dry-year conditions prevail, the project water supply is expected to experience a shortage of about 78,100 AF. Normal-year conditions are expected to be inadequate by 62,200 AF and wet-year conditions by 31,400 AF, to irrigate the 9,292 acres in the Frenchman Valley Irrigation District and 11,915 acres in the H&RW Irrigation District.

The Frenchman Valley Irrigation District and the H&RW Irrigation District are investigating possible alternatives for the most efficient use of the declining water supply in the basin.

Meeker-Driftwood, Red Willow, and Cambridge Units, Frenchman-Cambridge Division in Nebraska

General

Service is provided for Frenchman-Cambridge Irrigation District by Meeker-Driftwood Canal to 16,691 acres; Red Willow Canal to 4,643 acres; Bartley Canal to 6,130 acres; and Cambridge Canal to 18,205 acres. The water supply for these lands is provided by storage in Swanson, Hugh Butler, and Harry Strunk Lakes, and inflows of the Republican River and Red Willow and Medicine Creeks. The Frenchman-Cambridge Irrigation District has replaced all of the open ditch laterals that were economically feasible with buried pipe which has significantly increased both system and on-farm efficiencies.

2020 Summary

The annual precipitation total of 11.38 inches at Trenton Dam was 56 percent of normal. The inflow of 28,996 AF to Swanson Lake was between the normal-year and wet-year forecasts. The lake level began the year at elevation 2,740.00 feet (12.0 feet below the top of conservation) and gradually increased throughout the late winter and spring. The peak elevation on May 5 was 2,743.86 feet (8.1 feet below the top of conservation).

A slow-moving high intensity storm occurred on July 23 causing flash flood conditions around the intersection of the Nebraska, Colorado, Kansas boarders. The area received between 5-12 inches of rain overnight. The USGS measured a peak of 2,960 cfs on the North Fork of the Republican River at Benkelman. This was the largest flow observed since 1982. The peak on the North Fork at the Colorado-Nebraska state line was 391 cfs, the highest since 1992. The Arikaree River gage near Haigler peaked at 648 cfs, the highest since 1986. Buffalo Creek near Haigler peaked at 440 cfs the highest flow for the period of record (1940 – present). Rock Creek at Parks peaked at 190 cfs, the highest since 1965. The South Fork of the Republican River near Benkelman peaked at 5,300 cfs, the highest since 1975. Approximately 9,000 AF of inflow into Swanson Lake is estimated to have been generated by this flood event.

The reservoir level decreased throughout the irrigation season and reached an elevation of 2,738.24 feet on November 16. The district diverted 19,398 AF and delivered 7,463 AF to the farms, which is a delivery efficiency of 42 percent. At the end of the year, the reservoir level was 13.4 feet below the top of conservation at 2,738.60 feet. The Corps of Engineers determined that Swanson Lake prevented $46,500 in flood damages in 2020. A daily plot of the reservoir elevation is shown in Figure 3.

In late February 2013, the Upper Republican Natural Resources District (URNRD) began operating the Rock Creek Augmentation Project. The augmentation water is pumped from the ground and diverted into Rock Creek. The water flows from Rock Creek into the North Fork of the Republican River at Parks, Nebraska. From there the water travels approximately 35 miles to Swanson Lake. The URNRD did not pump water into Rock Creek in 2020.

The Republican River Water Conservation District (RRWCD) built and completed the Colorado Compliance Pipeline in April 2014. The augmentation water is pumped from the ground and flows

approximately 8 to 15 miles south to the North Fork of the Republican River just above the Colorado-Nebraska state line. The water then travels approximately 55 miles to Swanson Lake. The RRWCD pumped water in spring of 2020 and in December of 2020 for compact compliance.

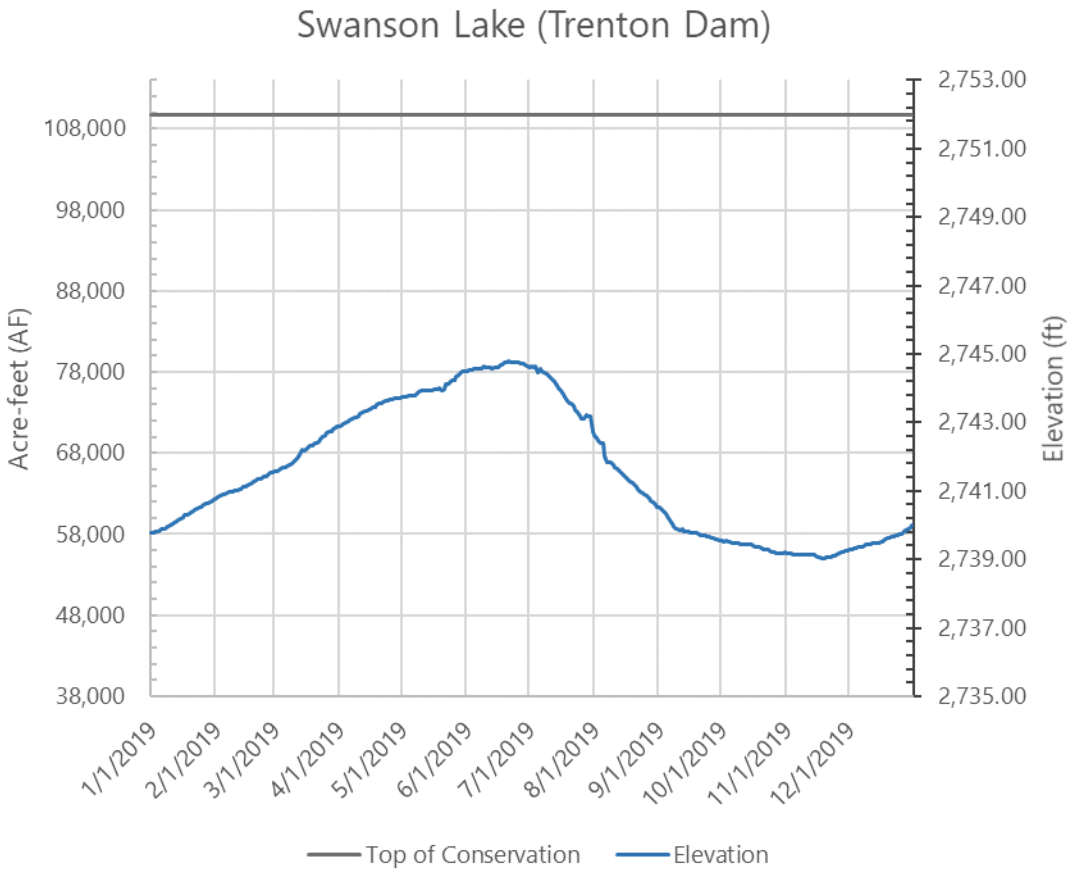


Figure 3 Swanson Lake Elevation and Content.

The annual precipitation total at Red Willow Dam was 15.60 inches (78 percent of normal). The annual inflow of 7,321 AF into Hugh Butler Lake was below the dry-year forecasts. The reservoir level at the first of the year was 2,572.31 feet, 9.5 feet below the top of conservation. Late winter, spring and summer inflows gradually increased the lake level to a summer peak of 2,574.28 feet on May 26. This was the highest elevation observed since 2009. The district diverted 5,226 AF into Red Willow Canal and delivered 1,423 AF to the farms, which is a delivery efficiency of 27 percent. Late summer evaporation exceeded inflows, decreasing the lake level to 2,568.05 feet on October 20. The end of year elevation was 2,568.67 feet, 13.1 feet below the top of conservation. A daily plot of the reservoir elevation is shown in Figure 4.

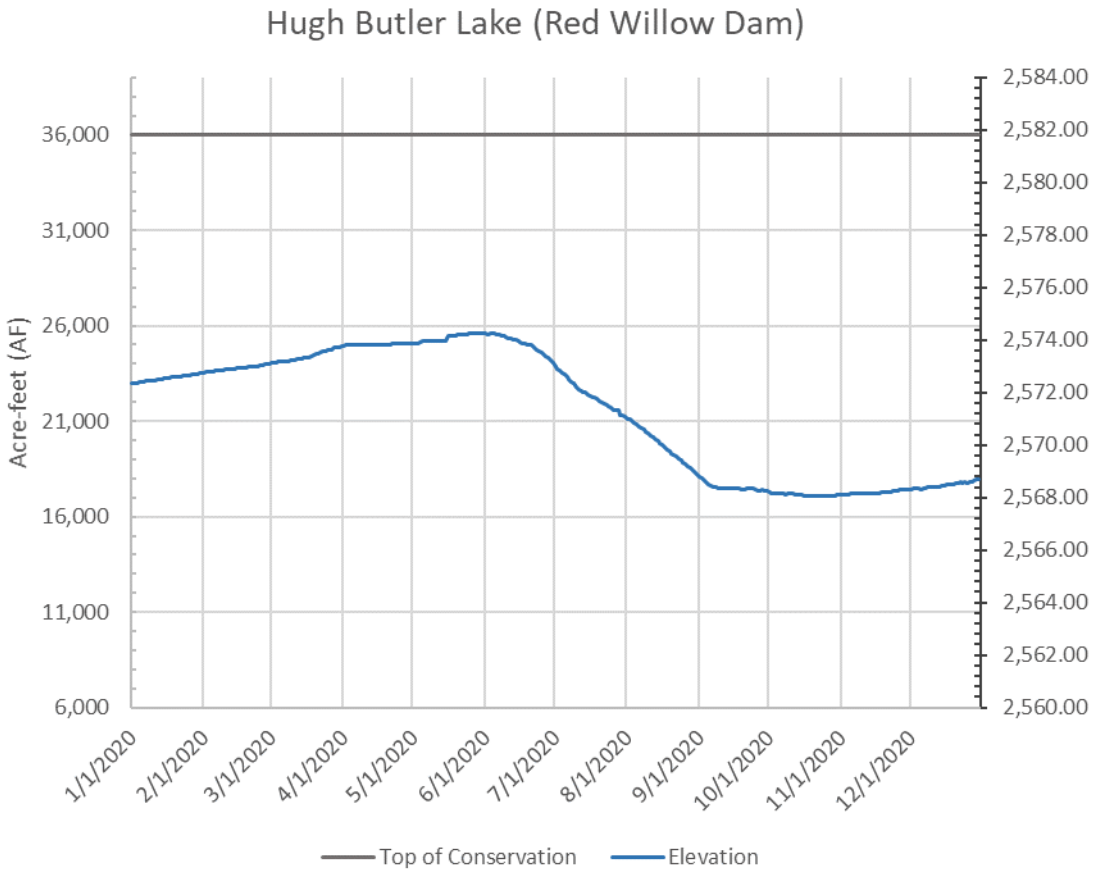


Figure 4 Hugh Butler Lake Elevation and Content.

The annual precipitation total of 20.04 inches at Medicine Creek Dam was 95 percent of normal. The inflow of 36,134 AF was between the dry-year and average forecast. The reservoir level at the beginning of 2020 was 0.2 feet below the top of conservation at 2,365.87 feet. The reservoir level was maintained near 0.5 foot below top of conservation from late-January through late-April with inflows passed through the outlet works. The reservoir level peaked at elevation 2,366.80 feet on May 28. Irrigation releases started May 1. The reservoir filled to top of conservation on May 7. Releases through the outlet works continued through September 4 reducing the reservoir level to 2,353.18 feet. A daily plot of the reservoir elevation is shown in Figure 5.

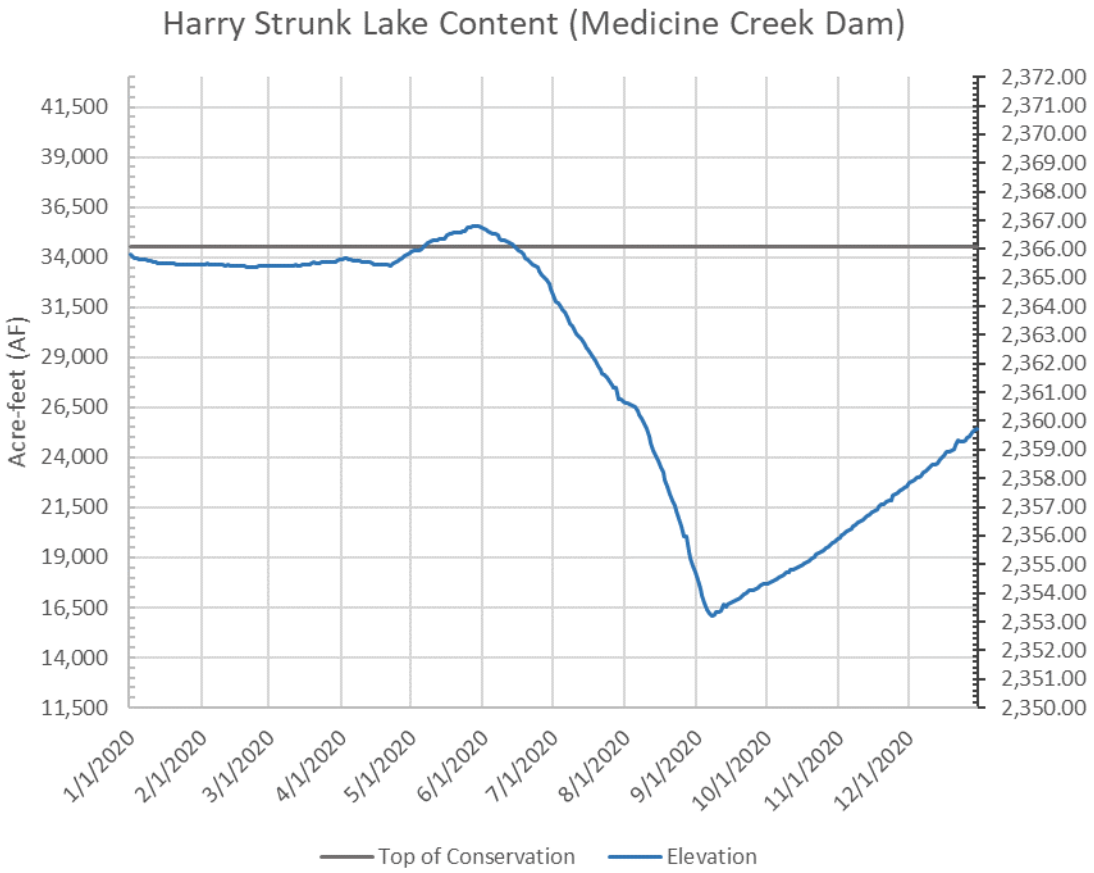


Figure 5 Harry Strunk Lake Elevation and Content.

The district diverted 26,714 AF into Cambridge Canal and delivered 11,107 AF to 16,006 acres of district lands which is a delivery efficiency of 42 percent. The end of year elevation was 2,359.72 feet at the end of the year (6.4 feet below the top of conservation).

The Nebraska Cooperative Republican Platte Enhancement Project (N-CORPE) is an interlocal agency formed by the Upper Republican Natural Resources District (URNRD), the Middle Republican Natural Resources District (MRNRD), the Lower Republican Natural Resources District (LRNRD), and the Twin Platte Natural Resources District. N-CORPE has constructed an augmentation project that pumps groundwater from Lincoln County into Medicine Creek. The delivery system consists of a 42-inch diameter pipe approximately six miles long. The pumped water enters at the source of Medicine Creek and travels approximately 57 stream miles to Harry Strunk Lake. The capacity of the project is approximately 87 cfs (63,000 AF annually). The augmentation project was not operated in 2020.

2021 Outlook

Forecasts show that carry-over storage, streamflow gains, plus reasonable minimum inflows for the three lakes supplying the Frenchman-Cambridge Irrigation District will be inadequate to meet the full dry-year irrigation requirement by 25,600 AF. The water supply will be adequate under normal-year and wet-year conditions.

Almena Unit, Kanaska Division in Kansas

General

Service is available to 5,764 acres in the Almena Irrigation District. The project water supply is provided by Prairie Dog Creek flows and Keith Sebelius Lake storage.

The water service contract for the City of Norton, Kansas, provides for a maximum annual use of 1,600 AF from Keith Sebelius Lake.

In 2017, the Almena Irrigation District and the Norton County Community Foundation, Inc. entered into a Memorandum of Agreement (MOA) to maintain a minimum pool elevation in Keith Sebelius Lake through December 31, 2027. The MOA was approved by the irrigators within the district and provided that no water would be released for irrigation below elevation 2,288.5 feet (10,126 AF.)

On November 22, 2019 the district executed an amendment to their contract which changed the irrigation season start date from May 1 to February 1.

2020 Summary

The annual precipitation at Norton Dam totaled 19.05 inches, which is 76 percent of normal. The total inflow of 7,566 AF was between the average and wet-year forecast. The reservoir was 4.4 feet below the top of conservation pool at the first of the year (2,299.94 feet). Late winter, spring and summer inflows gradually increased the lake level to a summer peak of 2,301.35 feet on May 28. This was the highest elevation observed since 2000. Irrigation releases began July 4 and finished for the season on August 18. Approximately 3,951 AF was released from Norton Dam for irrigation of which 3,076 AF was diverted into the Almena Canal of which 1109 AF was delivered to farms for an efficiency of 36 percent. Inflows in December exceeded evaporation gradually increasing the elevation to the end of year elevation of 2,297.19 feet, 7.1 feet below the top of conservation. A daily plot of the reservoir elevation is shown in Figure 6.

The city of Norton used 367 AF of municipal water during 2020.

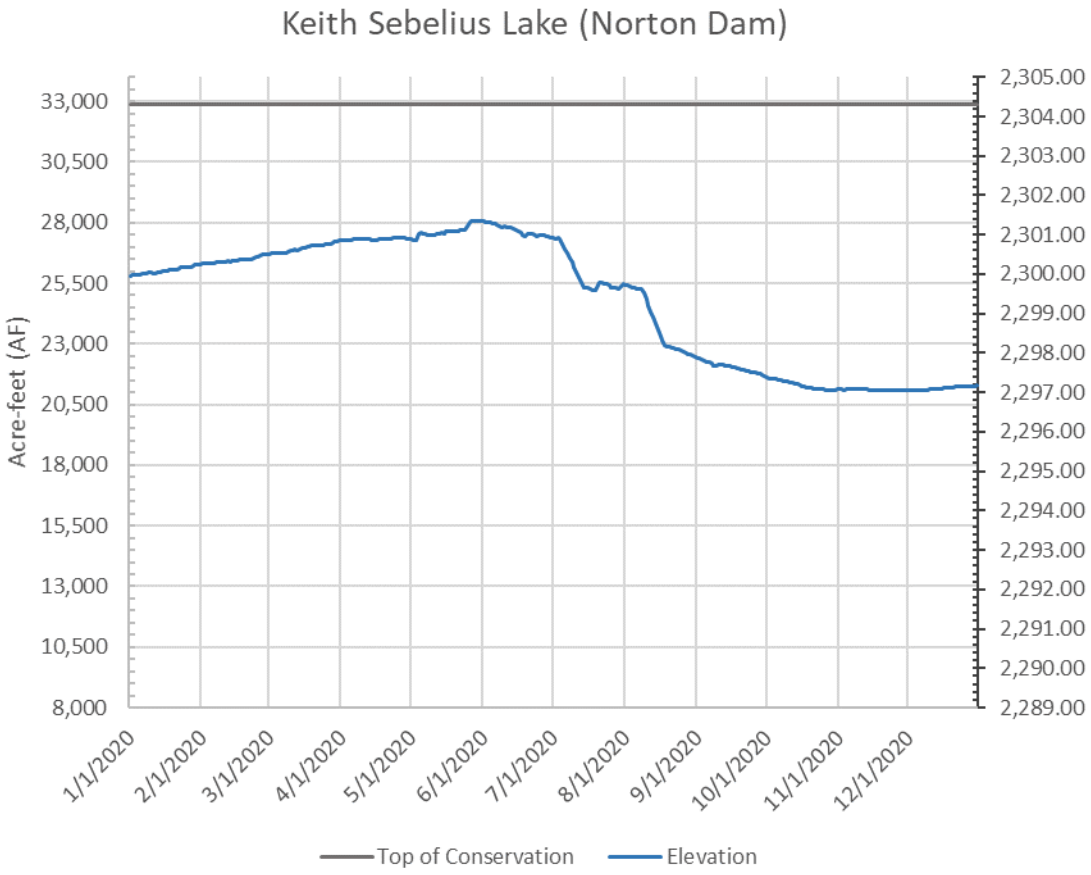


Figure 6 Keith Sebelius Lake Elevation and Content.

2021 Outlook

If 2020 is a dry year without significant runoff producing storms above Keith Sebelius Lake, it is anticipated that the water supply may be inadequate by as much as 13,200 AF. If normal inflow into the lake and normal rainfall over the irrigated area occur in 2020, a shortage of 8,300 AF may be experienced. The water supply will be adequate under wet-year conditions. Requirements for the city of Norton will be met in full in 2021.

Franklin, Superior-Courtland, and Courtland Units, Bostwick Division in Nebraska and Kansas

General

Harlan County Lake storage and Republican River flows provide a project water supply for 22,455 acres in the Bostwick Irrigation District in Nebraska, and 13,378 acres in the Kansas Bostwick Irrigation District No. 2 (KBID) above Lovewell Reservoir. This storage and natural flows, together with White Rock Creek flows and Lovewell Reservoir storage, furnish a water supply for 29,122 acres below Lovewell Reservoir in the KBID.

The lands in the Franklin and Superior-Courtland Units are in the Bostwick Irrigation District in Nebraska. The lands in the Courtland Unit downstream of the Kansas state line are in the KBID.

In accordance with the off-season flow alternative outlined in Reclamation's final environmental assessment dated December 16, 1983, and amended on November 21, 2002, Harlan County Lake releases will be 10 cfs during the months of December, January, and February, except when the reservoir is at low levels. During water-short years releases for these three months will be either zero or 5 cfs depending on reservoir levels.

Natural gain in streamflow, plus irrigation return flows, and operational bypass at Superior-Courtland Diversion Dam will provide some flow downstream.

The KDWPT has requested that the KBID and Reclamation maintain, when possible, a flow of 20 cfs into Lovewell Reservoir when the Courtland Canal is in operation and the conservation pool is below capacity. This recommended inflow provides excellent fishing around the canal inlet to the reservoir. The seepage below Lovewell Dam into White Rock Creek maintains a small live stream throughout the year.

Bostwick Division - Harlan County Lake Operations - 2020 Summary

The annual precipitation at Harlan County Dam totaled 17.38 inches of rainfall, which is 74 percent of normal. The 2020 inflow of 125,674 AF was between the average and wet-year forecast. Harlan County Lake began 2020 approximately 1.2 feet above the top of conservation pool, at 1,946.89 feet. This was the highest beginning year elevation since dam completion (1952).

The Corps of Engineers made varying flood releases all spring and early summer to keep the pool elevation near top of conservation. The conservation pool as well as accumulated flood pool were split June 15 as irrigation releases began.

Irrigation releases from Harlan County Lake into Franklin and Naponee Canals totaled 23,646 AF in 2020. The end of year elevation was 1,943.05 feet, 2.7 feet below the top of conservation. A plot of the reservoir elevation during 2020 is shown in Figure 7.

On December 21, 2018, Bostwick Irrigation District in Nebraska and KBID amended their original "Memorandum of Agreement" dated October 4, 2000, to modify Harlan County Lake accounting procedures. In the agreement, account balances of the districts carry-over from year to year and inflows are apportioned based on target account balances.

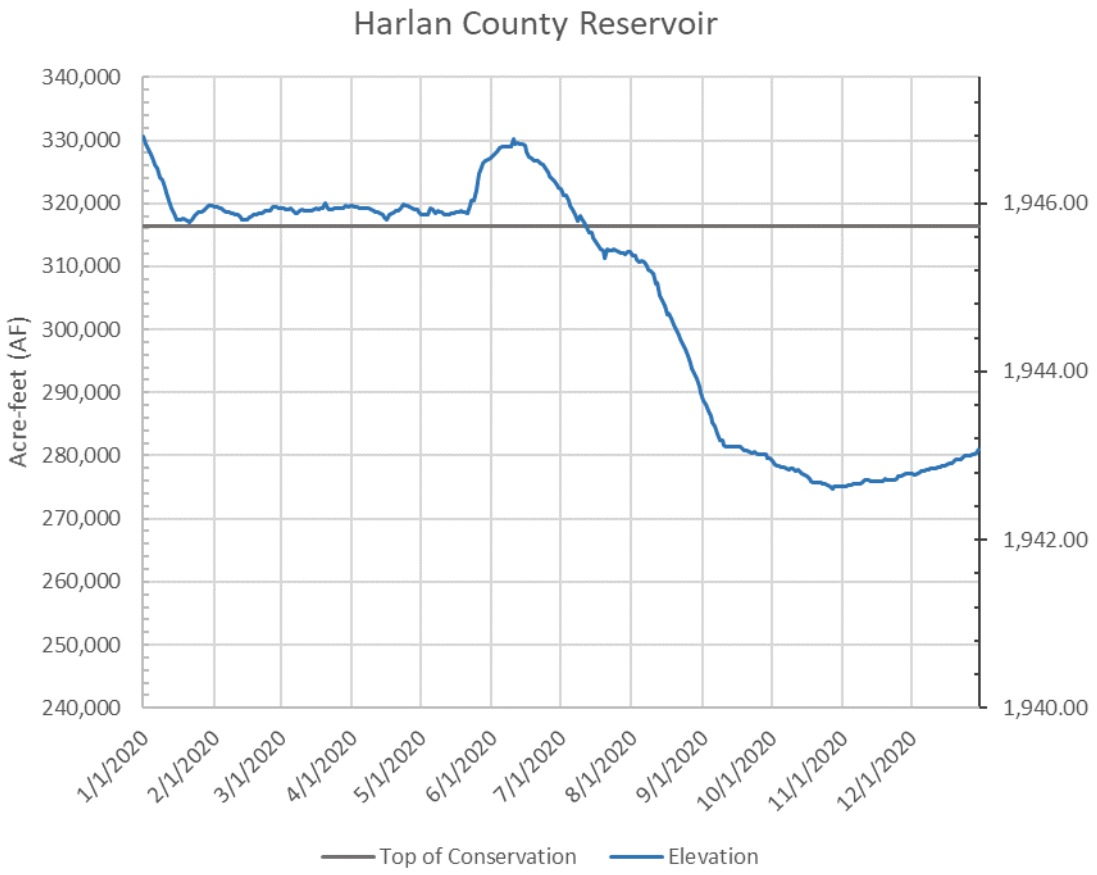


Figure 7 Harlan County Lake Elevation and Content.

Harlan County Lake prevented $193,800 of downstream flood damages during 2020 according to the Corps of Engineers.

There was 17,473 AF delivered to Lovewell Reservoir via the Courtland Canal during 2020. This was approximately 32 percent of the total Lovewell Reservoir inflow.

Bostwick Division – Nebraska - 2020 Summary

Irrigation diversions were made into Franklin, Naponee, Franklin Pump, Superior, and Courtland Canals in Nebraska in 2020. The district diverted 35,402 AF of water and delivered 8,574 AF to the farm head gates (24 percent delivery efficiency).

Bostwick Division – Kansas – 2020 Summary

The 2020 precipitation at Lovewell Dam totaled 21.40 inches, which was 77 percent of normal. The total annual inflow recorded at Lovewell Reservoir was 55,465 AF. Approximately 37,992 AF of the inflow was from White Rock Creek which was between the average and wet-year forecast. The reservoir elevation at the beginning of 2020 was 1,582.68 feet (0.08 feet above the top of conservation). Various releases were made throughout the spring to keep the reservoir about a foot below top of

conservation. Releases ceased April 7. Irrigation releases for canal seasoning/flushing began June 1 with releases in earnest beginning starting mid-June and continued until September 15. A series of hard rains at the end of July caused the reservoir elevation to raise 4.8 feet in 10 days to the yearly peak elevation of 1586.07 feet (3.5 feet) on July 29. Flood releases were staged up to 745 cfs at the beginning of August. Flood releases were staged down and by August 11 top of conservation was reached. Republican River flow was diverted via the Courtland Canal into Lovewell Reservoir after the irrigation season. The pool level at the end of the year was 1,581.03 feet (1.6 foot below top of conservation). A plot of the reservoir elevation during 2020 is shown in Figure 8.

KBID diverted a total of 42,667 AF to serve 13,378 acres above Lovewell Dam and 26,633 acres below Lovewell Dam. District farm delivery totaled 19,332 AF for an efficiency of 45 percent. Lovewell Reservoir prevented $622,300 of downstream flood damages during 2020 according to the Corps of Engineers.

Bostwick Division - 2021 Outlook

The storage in Harlan County Lake is expected to be inadequate in meeting the full dry-year irrigation requirement though Lovewell Reservoir and flows of the Republican River and White Rock Creek are expected to be adequate in meeting the full dry-year irrigation requirement. The water supply will be adequate under normal-year and wet-year conditions.

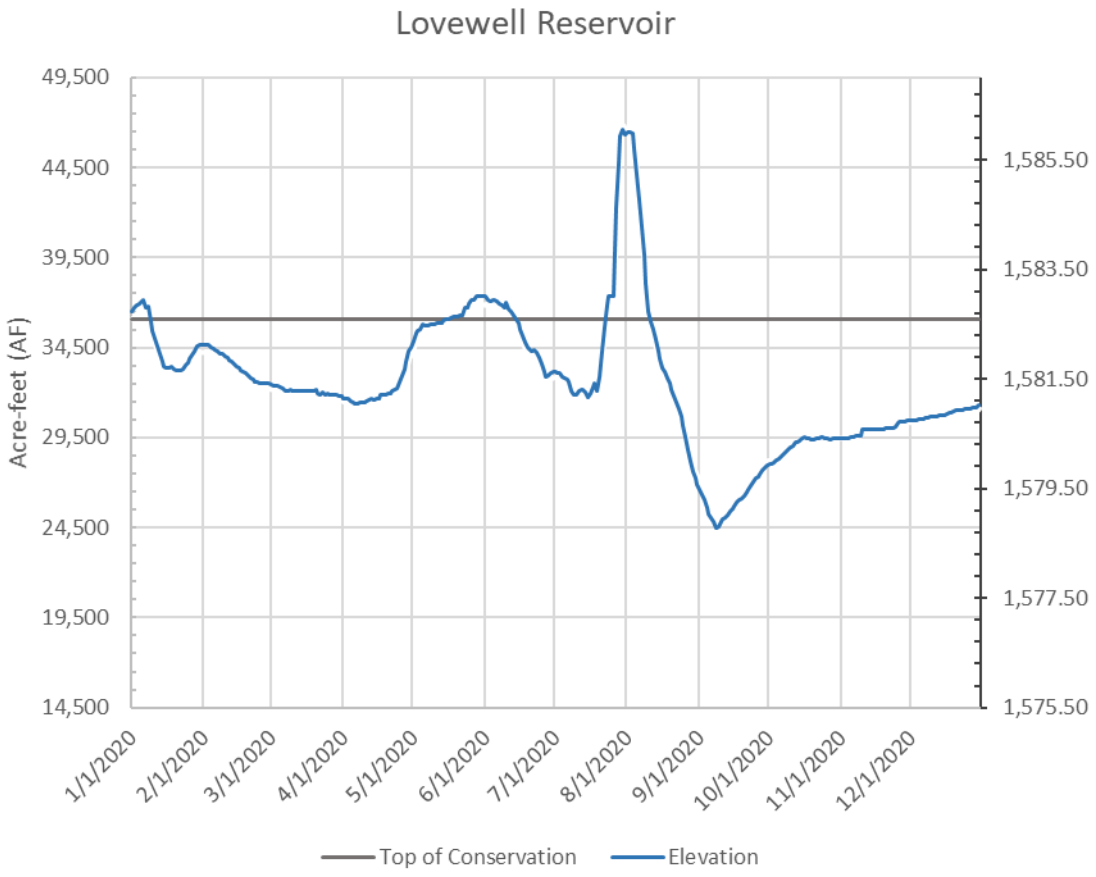


Figure 8 Lovewell Reservoir Elevation and Content.

Chapter IV - Smoky Hill River Basin

Kirwin Unit, Solomon Division in Kansas

General

The water supply for the 11,465 acres of land in the Kirwin Irrigation District is furnished by Kirwin Reservoir storage and inflows from the North Fork Solomon River and Bow Creek.

The operation of Kirwin Dam and Reservoir affords many opportunities for recreation, fishing, hunting, fish spawning, and preservation of waterfowl species.

The U.S. Fish and Wildlife Service (Service) has completed the Kirwin National Wildlife Refuge Comprehensive Conservation Plan (CCP). The 1997 National Refuge System Improvement Act required the Service to develop a CCP for each of its refuges. The Kirwin Refuge CCP will guide the refuge management activities through 2025.

2020 Summary

The annual precipitation total of 21.47 inches at Kirwin Dam was 90 percent of normal. The inflow of 45,763 AF was between the average and wet-year forecast. The reservoir level was 0.02 feet above the top of conservation pool at the first of the year (elevation 1,729.27 feet). Inflows were bypassed throughout the spring. The reservoir level peaked at elevation 1,729.75 on May 28. Irrigation releases began on June 15 and continued through August 31. The reservoir level gradually decreased throughout the fall and early winter to a minimum elevation of 1,726.99 feet on October 25. The reservoir level increased as inflow exceeded evaporation to elevation 1,727.72 feet on December 31 (1.5 feet below the top of conservation). A daily plot of the reservoir elevation is shown in Figure 9 on the following page.

A total of 17,986 AF was released into Kirwin Canal to irrigate 8,516 acres of project lands during 2020. Farm delivery efficiency was 38 percent with 6,775 AF delivered to farms.

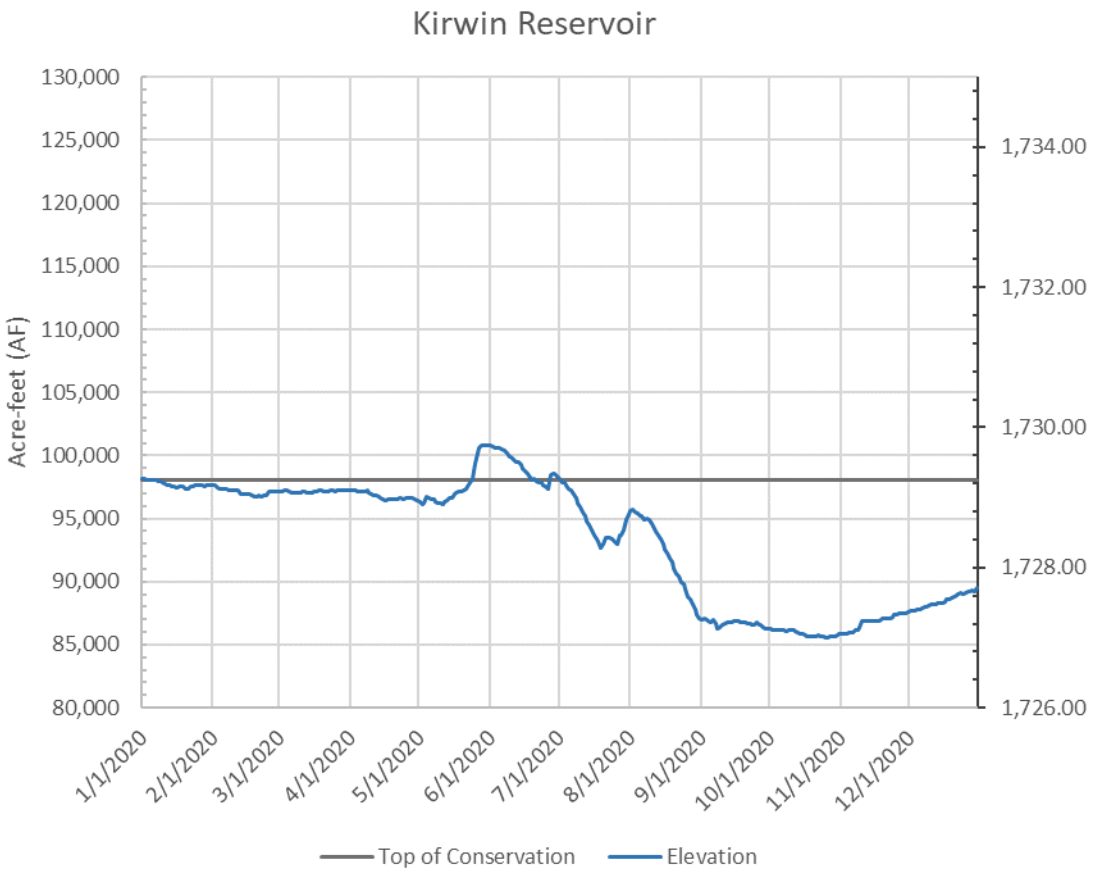


Figure 9 Kirwin Reservoir Elevation and Content.

2021 Outlook

Carry-over storage and the forecasted inflows in the North Fork of the Solomon River are expected to be adequate to irrigate all district lands under all forecasted conditions.

Webster Unit, Solomon Division in Kansas

General

The Webster Irrigation District has service available to 8,537 acres. The project water supply is provided by Webster Reservoir storage and flows of the South Fork Solomon River.

2020 Summary

In 2020, the precipitation at Webster Dam was 73 percent of normal (17.42 inches). The inflow of 48,914 AF was between the average and wet-year forecast. The reservoir level was 0.6 feet above the top of conservation pool at the first of the year (elevation 1,893.07 feet). Flood releases were made throughout the winter to maintain top of conservation. Releases continued through early June to maintain the reservoir elevation.

Releases for irrigation began June 17 and continued until August 27. The reservoir level gradually decreased throughout the fall to a minimum elevation of 1,889.57 feet on October 25. The reservoir level increased as inflow exceeded evaporation to elevation 1890.52 feet on December 31 (1.9 feet below the top of conservation). A daily plot of the reservoir elevation is shown in Figure 10 below.

A total of 10,658 AF was diverted into Osborne Canal to irrigate 5,677 acres of project lands during 2020. Farm delivery efficiency was 44 percent with 4,718 AF delivered to farms.

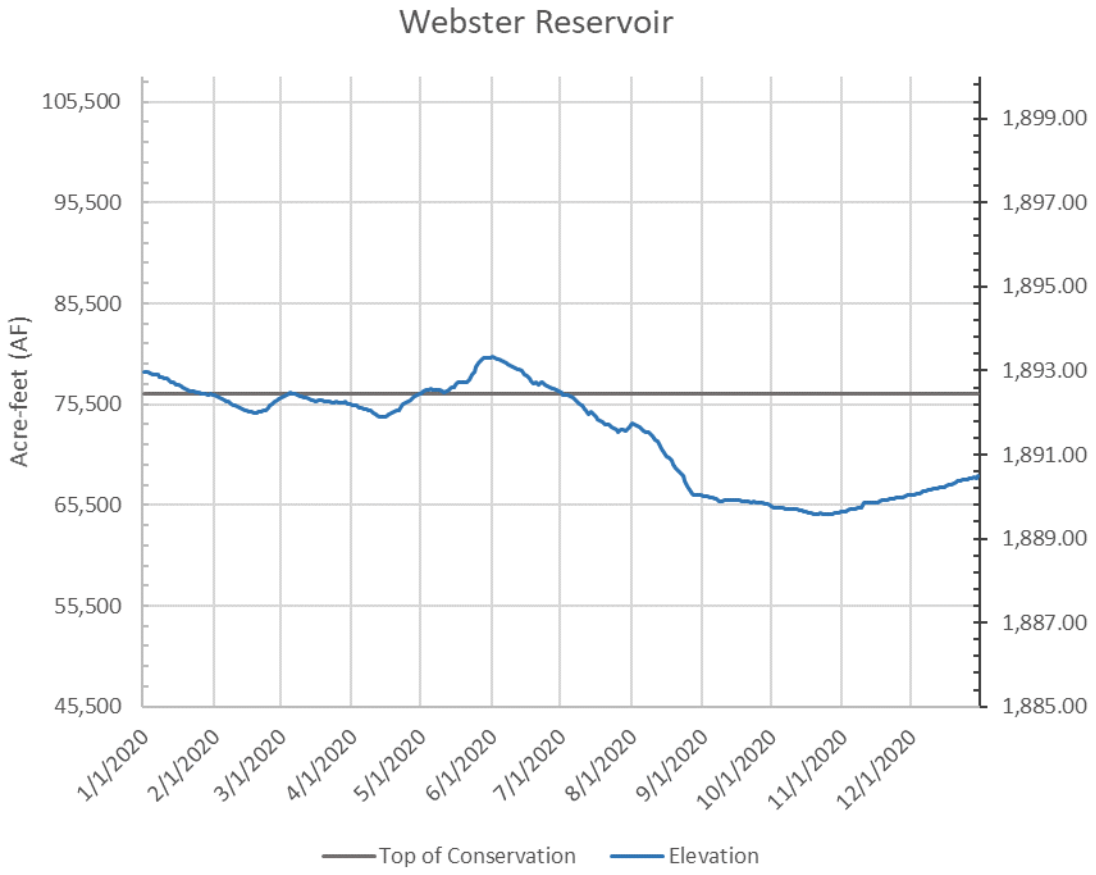


Figure 10 Webster Reservoir Elevation and Content.

2021 Outlook

The carry-over storage and the flows in the South Fork Solomon River are expected to be adequate to irrigate all district lands under all forecasted conditions.

Glen Elder Unit, Solomon Division in Kansas

General

Releases from Waconda Lake are regulated as outlined in two memorandums of understanding between the State of Kansas and Reclamation. Releases are made for the city of Beloit, the Mitchell County Rural Water District, the long-term water service contract with Glen Elder Irrigation District, and for water right administration.

Renewal of the long-term water service contract with the City of Beloit, Kansas was completed in 2008. The new repayment contract became effective on January 1, 2009. The repayment contract with Beloit, Kansas, provides for the annual use of up to 2,000 AF from Waconda Lake storage. Water is measured at the Glen Elder Dam river outlet works.

The water service contract with the Mitchell County Rural Water District No. 2 provides for 1,009 AF of storage water as available from Waconda Lake.

The long-term water service contract with the Glen Elder Irrigation District was to expire in June 2017. A one-year extension was signed May 18, 2018. Renewal of a long-term water service contract was completed in March of 2019. The new service contract has an upfront fee for a base 2000 AF of water. They can request an additional 1,500 AF firm supply as needed. Additional water is available up to a total release of 15,170 AF at Reclamation's discretion. The contract's expiration date is March 12, 2059. Water is released and measured through the river outlet works.

When compatible with flood control operations, the operating criteria for Waconda Lake provide for a stable or rising pool level during the fish spawning period each spring.

When possible, Waconda Lake is allowed to fill during the late summer and early fall to flood exposed shoreline vegetation. This flooded aquatic vegetation is very beneficial to waterfowl management.

Waconda Lake is normally regulated at one to two feet below the top of conservation capacity during the winter months. Maintaining the lake at this level reduces shoreline erosion, provides a buffer for spring runoff and lessens ice damage to the upstream face of Glen Elder Dam. Releases from Waconda Lake are regulated each year to maintain a constant water surface level while the lake is ice-covered.

2020 Summary

The annual precipitation total of 25.52 inches at Glen Elder Dam was 105 percent of normal. The inflow of 273,882 AF was between the average and wet-year forecast. The lake level at the beginning of the year was 0.5 feet above the top of conservation at 1,455.07 feet. Releases were made throughout the late winter and spring to reduce the level of Waconda Lake to one foot below top of conservation. Releases were staged down to zero on March 1 to dewater the outlet works to recoat the conduit. During the seven weeks of the project the reservoir the reservoir gained 4.1 feet of storage to elevation 1457.47 (1.9 feet in the flood pool). In late April releases were staged up to 1,250 cfs on May 12. Flood releases were staged down to 50 cfs by late June.

July precipitation totaled 9.76 inches the second most recorded in July since 1966. This cause the lake to quickly jump to the yearly peak elevation of 1459.87 (4.27 feet in the flood pool) on August 4. The Corp directed releases be staged up to 2,500 cfs on August 5. This quickly dropped the level of the reservoir three feet in two weeks. Flood releases were staged back to 100 cfs in late August and finally to 50 cfs in September. Flood releases remained at 50 cfs all of the fall until December when the lake level was reduced to the wintering elevation target of 1.0 foot below top of conservation.

Waconda Lake ended the year 0.9 feet (elevation 1,454.71 feet) below the top of conservation. Waconda Lake prevented $1,798,500 of downstream flood damages during 2020 according to the Corps of Engineers.

Glen Elder Irrigation District irrigated 5,000 acres with natural flow diversion of 2,804 AF. No releases were required from the district's storage account. The district delivered 1,207 AF to the farms resulting in a delivery efficiency of 48 percent. Due to all the flood operations, no storage releases were necessary for the City of Beloit. Releases to the Mitchell County Rural Water District No. 2 totaled 813 AF. A daily plot of the reservoir elevation is shown in Figure 11.

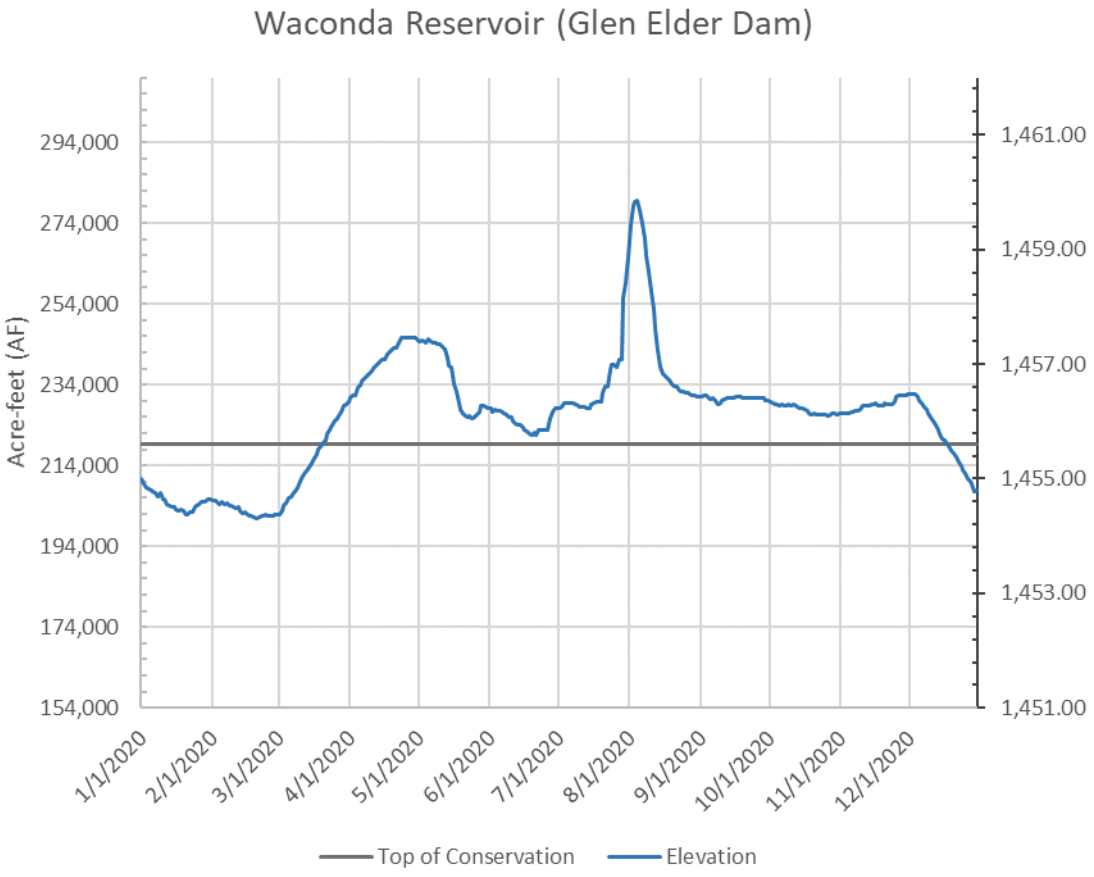


Figure 11 Waconda Lake Elevation and Content.

2021 Outlook

The municipal requirement of Beloit and the requirements of the Mitchell County Rural Water District No. 2 will be met in full with releases as required from Waconda Lake. It is expected that the Kansas Water Commissioner will request that inflows be passed through the lake for water right administration. The storage in Waconda Lake and flows in the North and South Forks of the Solomon River will furnish a full water supply to the Glen Elder Irrigation District. The reservoir will be regulated to maintain a constant level during the winter months when the reservoir is ice-covered to minimize ice damage. Under normal-year conditions, the lake is expected to be maintained between one and two feet below the top of the conservation pool during the winter.

Cedar Bluff Unit, Smoky Hill Division in Kansas

General

Cedar Bluff Reservoir storage furnishes a maximum of 2,000 AF each year for the City of Russell, Kansas when required. Prior to 1993, Cedar Bluff Reservoir storage and Smoky Hill River flows had provided a water supply for 6,800 acres in the Cedar Bluff Irrigation District. Reformulation of the Cedar Bluff Unit in October of 1992 resulted in the dissolution of the Cedar Bluff Irrigation District with the Kansas Water Office and Kansas Department of Wildlife and Parks acquiring the use and control of portions of the reservoir conservation capacity. A "designated operating pool" was established for Cedar Bluff Reservoir and includes the following sub allocation pools: The City of Russell's existing water storage right which remained unchanged (2,700 AF); an artificial recharge pool under control of the Kansas Water Office (5,110 AF); and a fish, wildlife and recreation pool under control of the KDWPT (21,061 AF). A "joint-use pool" has been established between the operating pool and the flood control pool for water supply, flood control, environmental and fish, wildlife and recreation purposes. Water rights for the "joint-use pool" are held jointly between the KDWPT and the Kansas Water Office. A Contract Administration Memorandum between the United States of America, represented by Reclamation, the State of Kansas and the City of Russell was signed in November/December of 2003, establishing an accounting procedure for water storage in Cedar Bluff Reservoir. In January 2006 a Memorandum of Understanding was signed by the State of Kansas agencies, Kansas Water Office, and Kansas Department of Wildlife and Parks. The KDWPT will be responsible for the joint pool releases and for the water rights.

2020 Summary

The annual precipitation total at Cedar Bluff Dam was 20.01 inches which is 94 percent of normal. The 2020 inflow of 18,585 AF was between the average and wet-year forecasts. The reservoir level at the beginning of the year was 2,133.67 feet (10.33 feet below top of conservation). The level of Cedar Bluff Reservoir slowly increased during the winter and spring months to a peak elevation of 2134.80 on May 25. This was the highest elevation observed since 2005. By late May evaporation exceeded inflow and the reservoir declined the rest of the year to a yearly low elevation of 2,132.80 feet on December 31 (11.20 feet below the top of conservation). Water was not released from the reservoir for the City of Russell or the Kansas Water Office in 2020. The Corps of Engineers determined that the reservoir prevented $1,723,900 in flood damages in 2020. A plot of Cedar Bluff Reservoir elevation and content during 2020 is shown in Figure 12.

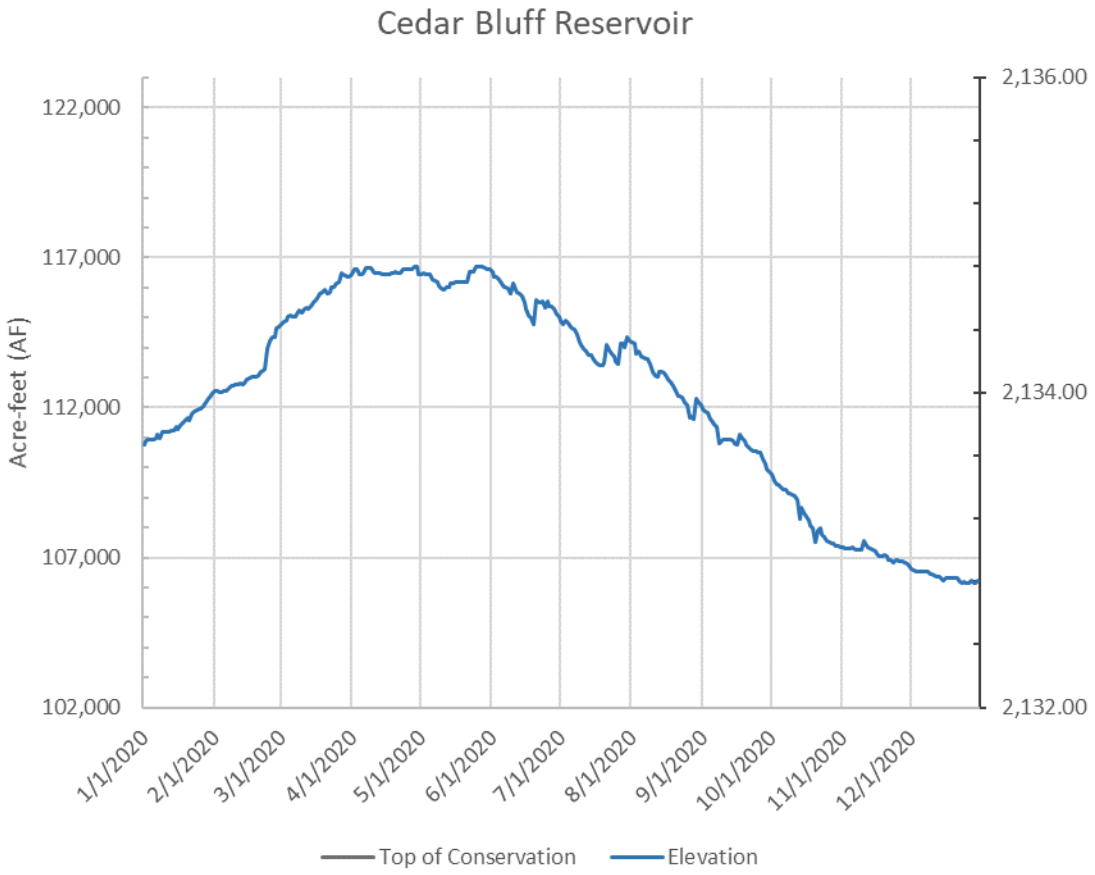


Figure 12 Cedar Bluff Reservoir Elevation and Content.

The State of Kansas operates and maintains the fish hatchery facility located below Cedar Bluff Dam. There were no releases to the facility in 2020.

2021 Outlook

Storage in Cedar Bluff Reservoir on December 31, 2020 was within the joint use pool. The KDWPT is expected to use very little if any water in the operations of the fish hatchery facility. If conditions are dry, the City of Russell and the Kansas Water Office may request a release to the river for recharge in 2021.

Appendix A Tables

Table 3: Reservoir Data – Niobrara, Lower Platte, and Kansas River Basins

Reservoir	Dead Storage Capacity (Acre-Feet)	Dead Storage Elevation (Feet)	Inactive Storage Capacity (Acre - Feet)	Inactive Storage Elevation (Feet)	Active Storage Capacity (Acre - Feet)	Active Storage Elevation (Feet)	Flood Control Storage Capacity (Acre - Feet)	Flood Control Storage Elevation (Feet)	Total Capacity (Acre - Feet)[1]
Box Butte	188	3,969.00	2,204	3,979.00	26,769	4,007.00	N/A	N/A	29,161
Merritt	774	2,875.00	3,888	2,896.00	62,064	2,946.00	N/A	N/A	66,726
Calamus	35	2,185.00	20,115	2,213.30	99,319	2,244.00	N/A	N/A	119,469
Davis Creek	76	1,998.50	96	2,003.00	30,986	2,076.00	N/A	N/A	31,158
Bonny	-	3,635.50	-	3,638.00	36,508	3,672.00	128,820	3,710.00	165,328
Enders	7,516	3,080.00	1,432	3,082.40	33,962	3,112.30	30,048	3,127.00	72,958
Swanson Lake	1,027	2,710.00	9,302	2,720.00	99,846	2,752.00	134,187	2,773.00	244,362
Hugh Butler Lake	5,185	2,552.00	3,736	2,558.00	27,303	2,581.80	48,846	2,604.90	85,070

Reservoir	Dead Storage Capacity (Acre-Feet)	Dead Storage Elevation (Feet)	Inactive Storage Capacity (Acre - Feet)	Inactive Storage Elevation (Feet)	Active Storage Capacity (Acre - Feet)	Active Storage Elevation (Feet)	Flood Control Storage Capacity (Acre - Feet)	Flood Control Storage Elevation (Feet)	Total Capacity (Acre - Feet)[1]
Harry Strunk Lake	3,408	2,335.00	4,489	2,343.00	26,750	2,366.10	52,714	2,386.20	87,361
Keith Sebelius Lake	1,636	2,275.00	2,357	2,280.40	30,517	2,304.30	99,230	2,331.40	133,740
Harlan County Lake[2]	-	1,885.00	118,099	1,927.00	196,012	1,945.73	500,000	1,973.50	814,111
Lovewell	1,659	1,562.07	9,985	1,571.70	24,022	1,582.60	50,465	1,595.30	86,131
Kirwin	4,969	1,693.00	3,546	1,697.00	89,639	1,729.25	215,136	1,757.30	313,290
Webster	1,256	1,855.50	2,975	1,860.00	71,926	1,892.45	183,353	1,923.70	259,510
Waconda Lake	248	1,407.80	25,989	1,428.00	193,183	1,455.60	722,988	1,488.30	942,408
Cedar Bluff	4,402	2,090.00	24,172	2,107.80	143,878	2,144.00	191,890	2,166.00	364,342
Total	**32,379**		**232,385**		**1,192,684**		**2,357,677**		**3,815,125**

1 - Includes space for sediment storage.
2 - Bottom of irrigation pool for Harlan County Lake is 1934.58 feet, 184,111 AF.

Table 4: Summary of Precipitation, Reservoir Storage and Inflows, Calendar Year 2020.

Reservoir	Total Precip. (Inches)	Percent of Average	Storage on Dec 31, 2019 (AF)	Storage on Dec 31, 2020 (AF)	Gain or Loss (AF)	Maximum Content (AF)	Date of Maximum content	Minimum Content (AF)	Date of Minimum Content	Total Inflow (AF)	Percent of Most Probable
Box Butte	12.64	73	21,979	14,856	(7,123)	27,973.5	5/28/2020	11,022.0	8/29/2020	16,289	106
Merritt	21.99	103	60,298	61,100	802	66,204.0	6/10/2020	45,059.5	9/7/2020	229,555	123
Calamus	19.42	77	81,765	96,864	15,099	122,537.0	5/28/2020	69,205.0	9/16/2020	367,867	139
Davis Creek	20.23	78	12,606	12,637	31	26,086.9	6/23/2020	11,762.0	4/25/2020	57,433	118
Bonny	11.90	67	-	-	-	-	#N/A	-	#N/A	3,772	56
Enders	11.95	62	9,786	8,638	(1,148)	10,490.6	5/17/2020	8,467.0	11/2/2020	3,733	63
Swanson	11.38	56	60,264	55,478	(4,786)	74,563.2	6/5/2020	54,280.4	11/16/2020	28,996	113
Hugh Butler	15.60	78	22,620	18,430	(4,190)	25,123.8	5/25/2020	17,767.0	10/20/2020	7,321	67
Harry Strunk	20.04	95	34,226	24,696	(9,530)	35,953.0	5/28/2020	16,793.6	9/7/2020	36,134	88
Keith Sebelius	19.05	76	25,829	21,197	(4,632)	28,440.5	5/28/2020	20,960.2	11/17/2020	7,566	115
Harlan County	17.38	74	329,729	279,631	(50,098)	328,511.0	1/1/2020	274,168.0	10/27/2020	125,674	119
Lovewell	21.40	77	35,905	31,163	(4,742)	46,837.0	7/30/2020	25,348.6	9/8/2020	55,465	143
Kirwin	21.47	90	98,255	90,582	(7,673)	100,709.5	5/28/2020	87,099.0	10/25/2020	45,763	172
Webster	17.42	73	78,208	69,098	(9,110)	79,476.4	6/1/2020	65,779.8	10/25/2020	48,914	275
Waconda	26.70	105	212,798	208,367	(4,431)	276,784.5	8/4/2020	203,525.2	2/20/2020	273,882	219
Cedar Bluff	20.01	94	110,720	106,503	(4,217)	116,533.0	4/28/2020	106,454.9	12/23/2020	18,585	148

Table 5: Acreage irrigated in 2020, and projections for 2021.

Irrigation District and Canal	Acres With Service Available	Acres Irrigated in 2020	Estimated Acres to be Irrigated in 2021
Mirage Flats Irrigation District			
Mirage Flats Canal	11,662	9,340	10,000
Ainsworth Irrigation District			
Ainsworth Canal	35,000	34,626	34,500
Twin Loups Irrigation District			
Above Davis Creek	34,453	34,110	34,000
Below Davis Creek	20,996	21,016	21,000
Total Twin Loups Irrigation District	**55,449**	**55,126**	**55,000**
Frenchman Valley Irrigation District			
Culbertson Canal	9,292	435	500
H & RW Irrigation District			
Culbertson Extension Canal	11,915	-	-
Frenchman-Cambridge Irrigation District			
Meeker-Driftwood Canal	16,691	10,959	7,000
Red Willow Canal	4,643	2,476	3,000
Bartley Canal	6,130	4,489	3,500
Cambridge Canal	18,205	16,006	13,000
Total Frenchman-Cambridge Irrigation District	**45,669**	**33,930**	**26,500**
Almena Irrigation District			
Almena Canal	5,764	5,764	2,500
Bostwick Irrigation District in Nebraska			
Franklin Canal	11,031	11,031	11,000
Naponee Canal	1,607	817	500
Franklin Pump Canal	2,026	864	1,500
Superior Canal	6,056	5,471	6,500
Courtland Canal (Nebraska)	1,735	859	1,500
Total Bostwick Irrigation Dist. in Nebraska	**22,455**	**19,042**	**21,000**
Kansas-Bostwick Irrigation District			
Courtland Canal above Lovewell	13,378	13,378	12,500

Irrigation District and Canal	Acres With Service Available	Acres Irrigated in 2020	Estimated Acres to be Irrigated in 2021
Courtland Canal below Lovewell	29,122	26,633	28,000
Total Kansas-Bostwick Irrigation District	**42,500**	**40,011**	**40,500**
Kirwin Irrigation District			
Kirwin Canal	11,465	8,516	9,000
Webster Irrigation District			
Osborne Canal	8,537	5,677	6,000
Glen Elder Irrigation District	10,370	2,528	6,000
TOTAL PROJECT USES	**270,078**	**214,995**	**211,500**
Non-Project Uses			
Hale Ditch	700	-	-
TOTAL PROJECT AND NON-PROJECT	**270,778**	**214,995**	**211,500**

Table 6: Water diverted in 2020, and estimated diversions in 2021.

Irrigation District and Canal	2020 Irrigation Start Date	2020 Irrigation End Date	10-Year Average Diversion (2010 – 2019, AF)	2020 Diversion (AF)	Estimated Diversion in 2021 (AF)
Mirage Flats Irrigation District					
Mirage Flats Canal	06/15	08/31	11,545	17,499	11,000
Ainsworth Irrigation District					
Ainsworth Canal	05/17	09/21	67,875	67,719	70,000
Twin Loups Irrigation District					
Above Davis Creek	04/20	09/17	42,490	43,603	46,000
Below Davis Creek	05/04	09/17	41,695	49,040	44,000
Total Twin Loups Irrigation District			**84,185**	**92,643**	**90,000**
Frenchman Valley Irrigation District					
Culbertson Canal	04/16	10/15	6,047	6,722	8,000
H & RW Irrigation District					
Culbertson Extension Canal[1]	-	-	-	-	-
Frenchman-Cambridge Irrigation District					
Meeker-Driftwood Canal	06/27	09/07	17,147	19,398	18,000
Red Willow Canal	06/22	09/07	577	5,226	5,500
Bartley Canal	05/05	09/07	7,146	6,358	9,000
Cambridge Canal	04/30	09/07	23,587	26,714	28,000
Total Frenchman-Cambridge Irrigation District			**48,457**	**57,696**	**60,500**
Almena Irrigation District					
Almena Canal	07/06	08/19	1,453	3,076	3,000
Bostwick Irrigation District in Nebraska					
Franklin Canal	06/15	09/09	17,425	22,053	18,000
Naponee Canal	06/22	09/09	1,068	1,593	1,000
Franklin Pump Canal	06/30	09/08	889	1,190	1,000
Superior Canal	05/08	09/08	6,570	10,070	8,000
Courtland Canal (Nebraska)	04/22	10/15	426	496	600
Total Bostwick Irrigation District in Nebraska			**26,378**	**35,402**	**28,600**
Kansas-Bostwick Irrigation District					
Courtland Canal above Lovewell	04/24	10/17	19,549	18,181	22,000
Courtland Canal below Lovewell	06/01	09/15	34,485	24,486	36,000

Irrigation District and Canal	2020 Irrigation Start Date	2020 Irrigation End Date	10-Year Average Diversion (2010 – 2019, AF)	2020 Diversion (AF)	Estimated Diversion in 2021 (AF)
Total Kansas-Bostwick Irrigation District			**54,034**	**42,667**	**58,000**
Kirwin Irrigation District					
Kirwin Canal	06/15	08/31	16,118	17,986	18,000
Webster Irrigation District					
Osborne Canal	06/10	08/28	7,675	10,658	12,000
Glen Elder Irrigation District	06/20	09/11	3,390	2,804	4,000
TOTAL			**327,157**	**354,872**	**363,100**

1 - Culbertson Extension Canal did not operate in 2020.

Table 7: Summary of 2020 Operations - Mirage Flats Project.

	BOX BUTTE RESERVOIR					MIRAGE FLATS CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip (Inches)	End of Month Content (AF)	Diversions to Canal (AF)	Delivered to Farms (AF)
Jan.	1,592	272	123	0.15	23,176	-	-
Feb.	1,954	248	158	0.70	24,724	-	-
Mar.	2,969	936	288	1.06	26,469	-	-
Apr.	2,130	1,273	478	0.64	26,848	-	-
May	1,998	307	581	1.97	27,958	-	-
June	381	3,463	746	1.78	24,130	3,550	1,337
July	227	6,682	712	3.11	16,963	7,759	4,085
Aug.	104	5,030	705	1.10	11,332	6,190	3,473
Sep.	926	137	339	0.65	11,782	-	-
Oct.	1,051	157	253	0.92	12,423	-	-
Nov.	1,570	157	144	0.19	13,692	-	-
Dec.	1,387	135	88	0.37	14,856	-	-
TOTAL	**16,289**	**18,797**	**4,615**	**12.64**	**--**	**17,499**	**8,895**

Note: Acres irrigated in 2020: Mirage Flats Canal: 9,340

Table 8: Summary of 2020 Operations - Sandhills Division, Ainsworth Unit.

	MERRITT RESERVOIR					AINSWORTH CANAL	
Month	**Inflow (AF)**	**Outflow (AF)**	**Gross Evap. (AF)**	**Precip (Inches)**	**End of Month Content (AF)**	**Releases to Canal (AF)**	**Delivered to Farms (AF)**
Jan.	19,973	18,667	234	0.32	61,370	-	-
Feb.	19,055	19,563	298	0.46	60,564	-	-
Mar.	22,605	21,656	413	2.34	61,100	-	-
Apr.	21,187	17,947	707	1.10	63,633	-	-
May	20,612	18,187	776	2.83	65,282	1,702	-
June	17,261	16,532	1,301	4.38	64,710	7,840	812
July	19,409	22,394	1,427	6.00	60,298	18,516	8,289
Aug.	18,043	29,495	1,334	1.70	47,512	29,226	18,331
Sep.	18,452	11,484	851	1.01	53,629	10,435	6,077
Oct.	17,489	8,113	735	0.75	62,270	-	-
Nov.	17,794	18,591	454	0.61	61,019	-	-
Dec.	17,675	17,377	217	0.49	61,100	-	-
TOTAL	**229,555**	**220,006**	**8,747**	**21.99**	**--**	**67,719**	**33,509**

NOTE: Acres irrigated 2020: Ainsworth Canal 34,626 acres.

Table 9: Summary of 2020 Operations - North Loup Division.

	CALAMUS RESERVOIR						ABOVE DAVIS CREEK MIRDAN CANAL		
Month	**Inflow (AF)**	**Outflow (AF)**	**Gross Evap. (AF)**	**Precip (Inches)**	**End of Month Content (AF)**	**Release to Calamus Fish Hatch. (AF)**	**Release to Canal (AF)**	**Canal Use (AF)**	**Delivered to Farms (AF)**
Jan.	28,726	20,406	394	0.72	89,691	-	-	-	-
Feb.	31,908	18,080	524	0.15	102,995	-	-	-	-
Mar.	39,769	24,991	1,019	2.25	116,754	34	-	-	-
Apr.	30,018	27,630	1,739	0.42	117,403	662	2,678	80	3
May	45,026	39,987	1,343	4.38	121,099	101	19,049	2,689	9
June	34,606	33,729	2,405	2.28	119,571	194	20,900	5,546	1,739
July	30,973	45,795	2,653	5.28	102,096	546	27,376	11,288	6,053
Aug	27,205	50,206	2,138	0.67	76,957	444	31,178	18,499	13,137
Sep.	24,403	28,753	1,505	0.77	71,102	274	10,420	5,501	3,269
Oct.	25,477	12,028	1,078	1.25	83,473	35	-	-	-
Nov.	24,349	12,936	635	0.87	94,251	-	-	-	-
Dec.	25,407	22,412	382	0.38	96,864	-	-	-	-
TOTAL	**367,867**	**336,953**	**15,815**	**19.42**	**--**	**2,290**	**111,601**	**43,603**	**24,210**

NOTE: Acres irrigated 2020: Mirdan Canal 34,110 acres.

Table 10: Summary of 2020 Operations - North Loup Division (continues).

	DAVIS CREEK RESERVOIR					BELOW DAVIS CREEK FULLERTON CANAL	
Month	**Inflow (AF)**	**Outflow (AF)**	**Gross Evap. (AF)**	**Precip (Inches)**	**End of Month Content (AF)**	**Release to Canal (AF)**	**Delivered to Farms (AF)**
Jan.	245	349	59	0.70	12,443	-	-
Feb.	121	317	73	0.02	12,174	-	-
Mar.	327	325	127	2.04	12,049	-	-
Apr.	696	305	207	0.56	12,233	-	-
May	14,129	4,308	281	4.77	21,773	3,623	4
June	12,021	7,561	540	4.07	25,693	7,258	2,159
July	13,477	13,291	507	5.07	25,372	12,287	7,058
Aug.	11,052	18,413	407	0.39	17,604	17,597	11,554
Sep.	4,765	8,618	243	0.80	13,508	8,275	1,227
Oct.	295	407	179	0.71	13,217	-	-
Nov.	171	373	96	0.58	12,919	-	-
Dec.	134	361	55	0.52	12,637	-	-
TOTAL	**57,433**	**54,628**	**2,774**	**20.23**	**--**	**49,040**	**22,002**

NOTE: Acres irrigated 2020: Fullerton Canal 21,016 acres.

Table 11: Summary of 2020 Operations - Upper Republican Division, Armel Unit.

	BONNY RESERVOIR					HALE DITCH
Month	**Inflow (AF)**	**Outflow (AF)**	**Gross Evap. (AF)**	**Precip (Inches)**	**End of Month Content (AF)**	**Outflow (AF)**
Jan.	244	244	-	0.49	-	-
Feb.	434	434	-	0.02	-	-
Mar.	722	722	-	1.28	-	-
Apr.	680	680	-	0.19	-	-
May	585	585	-	2.62	-	-
June	167	167	-	2.55	-	-
July	333	333	-	2.21	-	-
Aug.	123	123	-	0.75	-	-
Sep.	119	119	-	0.73	-	-
Oct.	123	123	-	0.33	-	-
Nov.	119	119	-	0.06	-	-
Dec.	123	123	-	0.67	-	-
TOTAL	**3,772**	**3,772**	**-**	**11.90**	**--**	**-**

Table 12: Summary of 2020 Operations - Frenchman-Cambridge Division, Frenchman Unit.

	ENDERS RESERVOIR					CULBERTSON CANAL		CULBERTSON EXT.CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip (Inches)	End of Month Content (AF)	Diversions to Canal (AF)	Delivered to Farms (AF)	Diversions to Canal (AF)	Delivered to Farms (AF)
Jan.	415	184	51	0.25	9,966	-	-	-	-
Feb.	365	173	64	0.25	10,094	-	-	-	-
Mar.	543	184	100	1.42	10,353	-	-	-	-
Apr.	436	179	250	0.31	10,360	925	-	-	-
May	541	184	282	2.29	10,435	1,862	-	-	-
June	242	179	545	1.21	9,953	1,266	44	-	-
July	302	184	449	4.73	9,622	891	103	-	-
Aug.	16	184	367	0.46	9,087	710	110	-	-
Sep.	56	179	283	0.44	8,681	651	-	-	-
Oct.	130	184	154	0.16	8,473	417	-	-	-
Nov.	302	179	99	0.12	8,497	-	-	-	-
Dec.	385	184	60	0.31	8,638	-	-	-	-
TOTAL	**3,733**	**2,177**	**2,704**	**11.95**	--	**6,722**	**257**	**-**	**-**

NOTE: Acres irrigated 2020: Culbertson Canal - 435 acres; Culbertson Extension Canal - 0 acres.

Table 13: Summary of 2020 Operations - Frenchman-Cambridge Division, Meeker-Driftwood Unit.

	SWANSON LAKE					MEEKER-DRIFTWOOD	
Month	**Inflow (AF)**	**Outflow (AF)**	**Gross Evap. (AF)**	**Precip (Inches)**	**End of Month Content (AF)**	**Release to Canal (AF)**	**Delivered to Farms (AF)**
Jan.	3,441	61	261	0.36	63,383	-	-
Feb.	3,550	58	352	0.12	66,523	-	-
Mar.	5,161	61	550	1.43	71,073	-	-
Apr.	3,385	60	1,338	0.25	73,060	-	-
May	2,766	61	1,550	2.25	74,215	-	-
June	789	3,138	2,385	1.15	69,481	3,273	612
July	4,553	7,351	1,778	2.90	64,905	7,212	3,154
Aug.	3,394	7,303	1,913	1.18	59,083	7,291	2,730
Sep.	28	1,839	1,425	0.84	55,847	1,622	967
Oct.	26	61	1,233	0.32	54,579	-	-
Nov.	482	60	555	0.08	54,446	-	-
Dec.	1,421	61	328	0.50	55,478	-	-
TOTAL	**28,996**	**20,114**	**13,668**	**11.38**	**--**	**19,398**	**7,463**

NOTE: Acres irrigated 2020: Meeker-Driftwood Canal - 10,959 acres.

Table 14: Summary of 2020 Operations – Frenchman-Cambridge Division, Red Willow Unit.

	HUGH BUTLER LAKE					RED WILLOW CANAL		BARTLEY CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip (Inches)	End of Month Content (AF)	Diversions to Canal (AF)	Delivered to Farms (AF)	Diversions to Canal (AF)	Delivered to Farms (AF)
Jan.	751	123	84	0.30	23,164	-	-	-	-
Feb.	667	115	113	0.40	23,603	-	-	-	-
Mar.	1,142	123	177	2.21	24,445	-	-	-	-
Apr.	650	119	401	0.30	24,575	-	-	-	-
May	1,086	123	453	3.88	25,085	-	-	2,050	20
June	252	807	902	1.27	23,628	652	-	1,854	284
July	861	2,479	864	3.96	21,146	2,433	650	1,450	717
Aug.	306	2,146	649	1.71	18,657	1,784	617	1,679	1,140
Sep.	203	541	382	0.70	17,937	357	156	355	326
Oct.	281	123	275	0.20	17,820	-	-	-	-
Nov.	481	119	171	0.10	18,011	-	-	-	-
Dec.	641	123	99	0.57	18,430	-	-	-	-
TOTAL	**7,321**	**6,941**	**4,570**	**15.60**	--	**5,226**	**1,423**	**7,388**	**2,487**

NOTE: Acres irrigated 2020: Red Willow Canal - 2,476 acres; Bartley Canal 4,489 acres.

Table 15: Summary of 2020 Operations - Frenchman-Cambridge Division, Cambridge Unit.

	HARRY STRUNK LAKE					CAMBRIDGE CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip (Inches)	End of Month Content (AF)	Diversions to Canal (AF)	Delivered to Farms (AF)
Jan.	3,006	3,616	128	0.34	33,488	-	-
Feb.	2,961	2,876	156	0.20	33,417	-	-
Mar.	4,613	3,997	241	2.31	33,792	-	-
Apr.	3,834	2,852	603	0.34	34,171	115	-
May	4,525	1,978	841	4.68	35,877	4,359	47
June	2,603	5,437	1,069	1.41	31,974	6,033	1,090
July	3,110	8,158	929	8.40	25,997	6,838	4,191
Aug.	2,065	8,956	618	0.67	18,488	7,866	4,651
Sep.	1,949	1,954	467	0.75	18,016	1,503	1,128
Oct.	2,163	61	298	0.16	19,820	-	-
Nov.	2,506	60	193	0.15	22,073	-	-
Dec.	2,799	61	115	0.63	24,696	-	-
TOTAL	**36,134**	**40,006**	**5,658**	**20.04**	--	**26,714**	**11,107**

NOTE: Acres irrigated 2020: Cambridge Canal 16,006 acres.

Table 16: Summary of 2020 Operations - Kanaska Division, Almena Unit.

	KEITH SEBELIUS LAKE						ALMENA CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip (Inches)	End of Month Content (AF)	Release to City of Norton (AF)	Diversions to Canal (AF)	Delivered to Farms (AF)
Jan.	732	47	128	0.44	26,386	16	-	-
Feb.	676	44	158	0.56	26,860	15	-	-
Mar.	961	48	263	0.94	27,510	17	-	-
Apr.	844	54	734	0.16	27,566	24	-	-
May	1,822	64	903	5.88	28,421	33	-	-
June	807	74	1,494	2.29	27,660	45	-	-
July	926	1,915	1,197	6.95	25,474	51	1,525	533
Aug.	94	2,175	1,052	0.36	22,341	47	1,551	576
Sep.	14	74	717	0.94	21,564	45	-	-
Oct.	2	67	491	0.17	21,008	35	-	-
Nov.	275	49	258	-	20,976	19	-	-
Dec.	413	51	141	0.36	21,197	20	-	-
TOTAL	**7,566**	**4,662**	**7,536**	**19.05**	**--**	**367**	**3,076**	**1,109**

NOTE: Acres irrigated 2020: Almena Canal 5,764 acres.

Table 17: Summary of 2020 Operations - Bostwick Division, Franklin Unit.

	HARLAN COUNTY LAKE (Data from Corps of Engineers)					FRANKLIN CANAL		NAPONEE CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip (Inches)	End of Month Content (AF)	Release to Canal (AF)	Delivered to Farms (AF)	Release to Canal (AF)	Delivered to Farms (AF)
Jan.	17,725	29,419	745	0.62	317,290	-	-	-	-
Feb.	16,277	14,839	1,703	0.06	317,025	-	-	-	-
Mar.	20,002	18,447	1,290	1.61	317,290	-	-	-	-
Apr.	15,991	14,144	2,906	0.18	316,231	-	-	-	-
May	20,148	7,498	3,888	5.36	324,993	-	-	-	-
June	9,188	8,452	5,607	2.46	320,122	4,472	564	163	40
July	10,505	13,752	6,866	4.87	310,009	6,448	1,235	417	68
Aug.	4,120	19,040	6,785	0.95	288,304	9,042	2,887	800	210
Sep.	1,847	4,477	7,044	0.82	278,630	2,091	1,084	213	38
Oct.	706	-	4,796	0.12	274,540	-	-	-	-
Nov.	4,510	-	2,775	0.23	276,275	-	-	-	-
Dec.	4,655	-	1,299	0.10	279,631	-	-	-	-
TOTAL	**125,674**	**130,068**	**45,704**	**17.38**	**--**	**22,053**	**5,770**	**1,593**	**356**

NOTE: Acres irrigated 2020: Franklin Canal - 11,079 acres; Naponee Canal - 817 acres.

Table 18: Summary of 2020 Operations - Bostwick Division, Superior-Courtland Unit.

	FRANKLIN PUMP CANAL		SUPERIOR CANAL		COURTLAND CANAL (ABOVE LOVEWELL) - NEBRASKA USE			COURTLAND CANAL (ABOVE LOVEWELL) - KANSAS USE	
Month	Diversions to Canal (AF)	Delivered to Farms (AF)	Diversions to Canal (AF)	Delivered to Farms (AF)	Total Diversion (AF)	Total Use (AF)	Delivered to Farms (AF)	Diversions to Canal (AF)	Delivered to Farms (AF)
Jan.	-	-	-	-	-	-	-	-	-
Feb.	-	-	-	-	-	-	-	-	-
Mar.	-	-	-	-	-	-	-	-	-
Apr.	-	-	-	-	3,602	-	-	-	-
May	-	-	2,147	-	372	-	-	-	-
June	9	-	2,326	116	7,991	71	54	4,780	805
July	381	120	2,029	370	10,951	172	146	3,932	1,310
Aug.	676	256	2,953	850	10,765	222	182	7,783	3,727
Sep.	124	76	615	250	8,297	31	28	1,686	726
Oct.	-	-	-	-	2,402	-	-	-	-
Nov.	-	-	-	-	-	-	-	-	-
Dec.	-	-	-	-	-	-	-	-	-
TOTAL	**1,190**	**452**	**10,070**	**1,586**	**44,380**	**496**	**410**	**18,181**	**6,568**

NOTE: Acres irrigated 2020:
Franklin Pump Canal - 864 acres.
Superior Canal - 5,471 acres.
Courtland Canal-Nebraska use - 513 acres.
Courtland Canal-Kansas use - 12,508 acres.

Table 19: Summary of 2020 Operations - Bostwick Division, Courtland Unit.

	LOVEWELL RESERVOIR							COURTLAND (Below)	
Month	Est. Flow from White Rock Creek (AF)	Inflow from Courtland 34.8 (AF)	Total Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip (Inches)	End of Month Content (AF)	Release to Canal (AF)	Delivered to Farms (AF)
Jan.	4,403	-	4,403	5,893	166	1.03	34,249	-	-
Feb.	2,213	-	2,213	4,025	219	0.07	32,218	-	-
Mar.	2,486	-	2,486	2,767	360	0.80	31,577	-	-
Apr.	1,873	2,277	4,150	736	858	0.41	34,133	-	-
May	3,114	705	3,819	12	1,067	3.14	36,873	-	-
June	1,414	1,401	2,815	5,139	1,709	2.93	32,840	5,246	1,446
July	18,085	4,641	22,726	7,447	1,562	8.13	46,557	5,060	1,531
Aug.	1,695	1,786	3,481	21,388	1,318	1.47	27,332	11,010	8,069
Sep.	412	4,758	5,170	3,519	754	1.33	28,229	3,170	1,718
Oct.	-	1,905	1,886	12	616	0.21	29,487	-	-
Nov.	1,303	-	1,303	12	407	1.62	30,371	-	-
Dec.	1,013	-	1,013	12	209	0.26	31,163	-	-
TOTAL	**37,992**	**17,473**	**55,465**	**50,962**	**9,245**	**21.40**	**--**	**24,486**	**12,764**

NOTE: Acres irrigated 2020: Courtland Canal below Lovewell 26,633 acres.

Table 20: Summary of 2020 Operations - Solomon Division, Kirwin Unit.

	KIRWIN RESERVOIR					KIRWIN CANAL	
Month	**Inflow (AF)**	**Outflow (AF)**	**Gross Evap. (AF)**	**Precip (Inches)**	**End of Month Content (AF)**	**Release to Canal (AF)**	**Delivered to Farms (AF)**
Jan.	2,335	2,448	343	0.69	97,799	-	-
Feb.	2,104	2,110	448	0.78	97,345	-	-
Mar.	4,805	3,997	707	0.77	97,446	-	-
Apr.	4,744	3,578	1,922	0.72	96,690	-	-
May	7,526	1,896	1,662	4.98	100,658	-	-
June	6,526	4,983	3,743	3.93	98,458	2,726	302
July	7,666	7,412	3,024	6.45	95,688	7,400	2,290
Aug.	3,569	8,019	2,813	0.42	88,425	7,860	4,183
Sep.	1,330	14	1,886	0.93	87,855	-	-
Oct.	799	-	1,272	0.08	87,382	-	-
Nov.	2,227	-	756	1.37	88,853	-	-
Dec.	2,132	-	403	0.35	90,582	-	-
TOTAL	**45,763**	**34,457**	**18,979**	**21.47**	**--**	**17,986**	**6,775**

NOTE: Acres irrigated 2020: Kirwin Canal - 8,516 acres.

Table 21: Summary of 2020 Operations - Solomon Division, Webster Unit.

	WEBSTER RESERVOIR					OSBORNE CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip (Inches)	End of Month Content (AF)	Diversions to Canal (AF)	Delivered to Farms (AF)
Jan.	7,269	9,152	281	0.73	76,044	-	-
Feb.	6,516	6,563	329	0.55	75,668	-	-
Mar.	7,386	7,321	551	0.58	75,182	-	-
Apr.	6,270	4,179	1,153	0.49	76,120	-	-
May	7,123	2,343	1,462	3.35	79,438	-	-
June	4,408	4,893	2,532	2.94	76,421	2,379	185
July	3,941	5,135	1,974	5.77	73,253	3,659	1,622
Aug.	1,336	5,461	1,719	0.78	67,409	4,620	2,911
Sep.	370	-	1,240	0.59	66,539	-	-
Oct.	335	-	853	0.10	66,021	-	-
Nov	1,955	-	567	1.29	67,409	-	-
Dec.	2,005	-	316	0.25	69,098	-	-
TOTAL	**48,914**	**45,047**	**12,977**	**17.42**	--	**10,658**	**4,718**

NOTE: Acres irrigated 2020: Osborne Canal - 5,677 acres.

Table 22: Summary of 2020 Operations - Solomon Division, Glen Elder Unit.

	WACONDA LAKE					OUTFLOW TO RIVER				
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip (Inches)	End of Month Content (AF)	City of Beloit Storage Release (AF)	City of Beloit Quality Bypass (AF)	Irrig. District Storage Release (AF)	Other Controlled Releases (AF)	Release to Mitchell Co. RWD No. 2 (AF)
Jan.	37,255	41,737	802	0.47	207,514	-	-	-	41,656	81
Feb.	28,360	30,654	974	0.06	204,246	-	-	-	30,571	83
Mar.	27,386	916	1,725	0.48	228,991	-	-	-	827	89
Apr.	23,122	4,072	4,854	0.85	243,187	-	-	-	3,981	91
May	20,669	31,484	4,929	2.83	227,443	-	-	-	31,402	82
June	22,564	13,744	8,820	6.67	227,443	-	-	-	13,642	102
July	51,967	8,320	8,346	9.76	262,744	-	-	-	8,252	68
Aug.	35,171	61,323	6,566	2.99	230,026	-	-	-	61,251	72
Sep.	7,576	3,530	4,823	0.69	229,249	-	-	-	3,483	47
Oct.	3,625	3,110	3,605	0.10	226,159	-	-	-	3,074	36
Nov.	9,421	3,005	2,031	1.60	230,544	-	-	-	2,975	30
Dec.	6,766	27,952	991	0.20	208,367	-	-	-	27,920	32
TOTAL	**273,882**	**229,847**	**48,466**	**26.70**	--	**-**	**-**	**-**	**229,034**	**813**

NOTE: Acres irrigated 2020: Glen Elder District 2,528 acres.

Table 23: Summary of 2020 Operations - Smoky Hill Division, Ellis Unit.

	CEDAR BLUFF RESERVOIR							
Month	**Inflow (AF)**	**Outflow (AF)**	**Gross Evap. (AF)**	**Precip (Inches)**	**End of Month Content (AF)**	**Release to City of Russell (AF)**	**Release to Fish Hatchery (AF)**	**Release to Kansas Water Office (AF)**
Jan.	2,117	-	460	0.72	112,377	-	-	-
Feb.	2,695	-	505	1.46	114,567	-	-	-
Mar.	2,473	-	820	0.31	116,220	-	-	-
Apr.	2,224	-	2,171	-	116,273	-	-	-
May	2,663	-	2,507	2.31	116,429	-	-	-
June	2,402	-	3,956	5.83	114,875	-	-	-
July	2,716	-	3,485	5.59	114,106	-	-	-
Aug.	957	-	3,039	2.34	112,024	-	-	-
Sep.	40	-	2,140	0.45	109,924	-	-	-
Oct.	21	-	2,377	0.10	107,568	-	-	-
Nov.	253	-	835	0.61	106,986	-	-	-
Dec.	24	-	507	0.29	106,503	-	-	-
TOTAL	**18,585**	**-**	**22,802**	**20.01**	**--**	**-**	**-**	**-**

Table 24: Box Butte Reservoir Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Volume (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions											
Jan	15	0.9	1.6	0.1	2	0.1	0.0	0.0	3997.1	15.6	0.7
Feb	18	1.0	1.9	0.1	2	0.1	0.0	0.0	3997.7	16.4	0.8
Mar	24	1.5	3.8	0.3	2	0.1	0.0	0.0	3998.7	17.5	1.1
Apr	20	1.2	5.3	0.4	2	0.1	0.0	0.0	3999.2	18.2	0.7
May	16	1.0	6.6	0.5	2	0.1	0.0	0.0	3999.5	18.6	0.4
Jun	10	0.6	8.8	0.6	89	5.3	0.0	0.0	3995.0	13.3	-5.3
Jul	6	0.4	10.0	0.6	226	13.9	0.0	3.2	3979.0	2.4	-10.9
Aug	11	0.7	8.8	0.2	213	13.1	0.0	12.6	3979.0	2.4	0.0
Sep	12	0.7	6.6	0.1	40	2.4	0.0	1.8	3979.0	2.4	0.0
Oct	15	0.9	5.0	0.1	2	0.1	0.0	0.0	3980.9	3.1	0.7
Nov	18	1.1	2.5	0.1	2	0.1	0.0	0.0	3982.5	4.0	0.9
Dec	15	0.9	1.9	0.1	2	0.1	0.0	0.0	3983.9	4.7	0.7
Total		**10.9**	**62.8**	**3.2**		**35.5**	**0.0**	**17.6**			**-10.2**
Most Probable Inflow Conditions											
Jan	19	1.2	1.5	0.1	2	0.1	0.0	0.0	3997.3	15.9	1.0
Feb	25	1.4	1.7	0.1	2	0.1	0.0	0.0	3998.3	17.1	1.2
Mar	34	2.1	3.5	0.2	2	0.1	0.0	0.0	3999.8	18.9	1.8
Apr	29	1.7	4.9	0.4	2	0.1	0.0	0.0	4000.7	20.1	1.2
May	23	1.4	6.1	0.5	2	0.1	0.0	0.0	4001.3	20.9	0.8
Jun	13	0.8	8.1	0.6	70	4.2	0.0	0.0	3998.2	16.9	-4.0
Jul	10	0.6	9.3	0.7	209	12.9	0.0	0.0	3982.3	3.9	-13.0

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Volume (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	15	0.9	8.1	0.2	164	10.1	0.0	7.9	3979.0	2.4	-1.5
Sep	17	1.0	6.1	0.1	29	1.7	0.0	0.8	3979.0	2.4	0.0
Oct	19	1.2	4.7	0.1	2	0.1	0.0	0.0	3981.3	3.4	1.0
Nov	25	1.5	2.3	0.1	2	0.1	0.0	0.0	3983.9	4.7	1.3
Dec	19	1.2	1.7	0.1	2	0.1	0.0	0.0	3985.6	5.7	1.0
Total		**15.0**	**58.0**	**3.2**		**29.7**	**0.0**	**8.7**			**-9.2**
Reasonable Maximum Inflow Conditions											
Jan	29	1.8	1.3	0.1	2	0.1	0.0	0.0	3997.8	16.5	1.6
Feb	38	2.1	1.6	0.1	2	0.1	0.0	0.0	3999.4	18.4	1.9
Mar	50	3.1	3.2	0.2	2	0.1	0.0	0.0	4001.5	21.2	2.8
Apr	44	2.6	4.6	0.4	2	0.1	0.0	0.0	4003.0	23.3	2.1
May	32	2.0	5.6	0.5	2	0.1	0.0	0.0	4004.0	24.7	1.4
Jun	20	1.2	7.5	0.6	47	2.8	0.0	0.0	4002.5	22.5	-2.2
Jul	13	0.8	8.6	0.7	135	8.3	0.0	0.0	3995.7	14.3	-8.2
Aug	23	1.4	7.5	0.5	104	6.4	0.0	0.0	3990.1	8.8	-5.5
Sep	23	1.4	5.6	0.3	18	1.1	0.0	0.0	3990.1	8.8	0.0
Oct	29	1.8	4.3	0.2	2	0.1	0.0	0.0	3991.9	10.3	1.5
Nov	37	2.2	2.1	0.1	2	0.1	0.0	0.0	3993.9	12.3	2.0
Dec	29	1.8	1.6	0.1	2	0.1	0.0	0.0	3995.5	13.9	1.6
Total		**22.2**	**53.5**	**3.8**		**19.4**	**0.0**	**0.0**			**-1.0**

Table 25: Merritt Reservoir Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. Canal (KAF)	Release Req. River (KAF)	Release Req. Total (CFS)	Release Req. Total (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions													
Jan	224	13.8	1.9	0.3	0.0	1.0	16	1.0	12.5	0.0	2944.0	61.1	0.0
Feb	246	13.7	2.6	0.4	0.0	1.0	18	1.0	12.3	0.0	2944.0	61.1	0.0
Mar	253	15.6	3.2	0.5	0.0	1.0	16	1.0	11.3	0.0	2945.0	63.9	2.8
Apr	258	15.4	5.1	0.8	0.0	1.0	17	1.0	10.8	0.0	2946.0	66.7	2.8
May	250	15.4	6.4	1.1	3.4	1.0	71	4.4	9.9	0.0	2946.0	66.7	0.0
Jun	238	14.2	8.3	1.4	7.6	1.0	144	8.6	4.2	0.0	2946.0	66.7	0.0
Jul	239	14.7	9.6	1.6	33.4	1.0	558	34.4	0.0	0.0	2937.0	45.4	-21.3
Aug	245	15.1	8.3	0.9	31.0	1.0	519	32.0	0.0	0.0	2926.0	27.6	-17.8
Sep	242	14.4	7.0	0.5	8.5	1.0	159	9.5	0.0	0.0	2929.2	32.0	4.4
Oct	245	15.1	6.4	0.5	0.0	2.5	41	2.5	0.0	0.0	2936.4	44.1	12.1
Nov	238	14.2	3.2	0.4	0.0	4.0	67	4.0	0.0	0.0	2941.1	53.9	9.8
Dec	222	13.7	1.9	0.3	0.0	1.0	16	1.0	5.2	0.0	2944.0	61.1	7.2
Total		**175.3**	**63.9**	**8.7**	**83.9**	**16.5**		**100.4**	**66.2**	**0.0**			**0.0**
Most Probable Inflow Conditions													
Jan	242	14.9	1.7	0.3	0.0	1.0	16	1.0	13.6	0.0	2944.0	61.1	0.0
Feb	264	14.7	2.3	0.4	0.0	1.0	18	1.0	13.3	0.0	2944.0	61.1	0.0
Mar	273	16.8	2.8	0.4	0.0	1.0	16	1.0	12.6	0.0	2945.0	63.9	2.8
Apr	278	16.6	4.5	0.7	0.0	1.0	17	1.0	12.1	0.0	2946.0	66.7	2.8
May	269	16.6	5.7	1.0	2.9	1.0	63	3.9	11.7	0.0	2946.0	66.7	0.0
Jun	257	15.3	7.4	1.3	6.5	1.0	126	7.5	6.5	0.0	2946.0	66.7	0.0
Jul	256	15.8	8.5	1.4	28.5	1.0	479	29.5	0.0	0.0	2940.0	51.6	-15.1

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. Canal (KAF)	Release Req. River (KAF)	Release Req. Total (CFS)	Release Req. Total (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	263	16.2	7.4	0.9	26.6	1.0	448	27.6	0.0	0.0	2933.8	39.3	-12.3
Sep	260	15.5	6.2	0.6	7.3	1.0	139	8.3	0.0	0.0	2937.3	45.9	6.6
Oct	263	16.2	5.7	0.7	0.0	2.5	41	2.5	0.0	0.0	2943.1	58.9	13.0
Nov	257	15.3	2.8	0.4	0.0	4.0	67	4.0	8.7	0.0	2944.0	61.1	2.2
Dec	239	14.7	1.7	0.3	0.0	1.0	16	1.0	13.4	0.0	2944.0	61.1	0.0
Total		**188.6**	**56.7**	**8.4**	**71.8**	**16.5**		**88.3**	**91.9**	**0.0**			**0.0**
Reasonable Maximum Inflow Conditions													
Jan	279	17.2	1.5	0.2	0.0	1.0	16	1.0	16.0	0.0	2944.0	61.1	0.0
Feb	306	17.0	2.0	0.3	0.0	1.0	18	1.0	15.7	0.0	2944.0	61.1	0.0
Mar	315	19.4	2.5	0.4	0.0	1.0	16	1.0	15.2	0.0	2945.0	63.9	2.8
Apr	322	19.2	4.0	0.7	0.0	1.0	17	1.0	14.7	0.0	2946.0	66.7	2.8
May	312	19.2	5.0	0.8	2.4	1.0	55	3.4	15.0	0.0	2946.0	66.7	0.0
Jun	295	17.6	6.5	1.1	5.3	1.0	106	6.3	10.2	0.0	2946.0	66.7	0.0
Jul	297	18.3	7.6	1.3	23.3	1.0	394	24.3	0.0	0.0	2943.3	59.4	-7.3
Aug	304	18.7	6.5	1.0	21.8	1.0	370	22.8	0.0	0.0	2941.2	54.3	-5.1
Sep	300	17.9	5.5	0.7	5.9	1.0	116	6.9	0.0	0.0	2945.2	64.6	10.3
Oct	304	18.7	5.0	0.8	0.0	2.5	41	2.5	18.9	0.0	2944.0	61.1	-3.5
Nov	295	17.6	2.5	0.4	0.0	4.0	67	4.0	13.2	0.0	2944.0	61.1	0.0
Dec	276	17.0	1.5	0.2	0.0	1.0	16	1.0	15.8	0.0	2944.0	61.1	0.0
Total		**217.8**	**50.1**	**7.9**	**58.7**	**16.5**		**75.2**	**134.7**	**0.0**			**0.0**

Table 26: Calamus Reservoir Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. Canal (KAF)	Release Req. River (KAF)	Release Req. Total (CFS)	Release Req. Total (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions													
Jan	294	18.1	1.9	0.5	0.5	3.1	58	3.6	10.4	0.0	2240.0	100.5	3.6
Feb	313	17.4	2.3	0.6	0.5	2.8	59	3.3	13.5	0.0	2240.0	100.5	0.0
Mar	349	21.5	4.2	1.1	0.5	3.1	58	3.6	7.6	0.0	2242.0	109.7	9.2
Apr	361	21.5	6.6	1.8	0.5	3.0	59	3.5	6.4	0.0	2244.0	119.5	9.8
May	399	24.6	6.9	2.0	2.7	3.1	94	5.8	16.8	0.0	2244.0	119.5	0.0
Jun	364	21.7	8.4	2.5	5.6	3.0	144	8.6	10.6	0.0	2244.0	119.5	0.0
Jul	341	21.0	9.5	2.8	37.8	21.0	954	58.8	0.0	0.0	2234.7	78.9	-40.6
Aug	321	19.8	9.5	2.1	30.4	19.8	815	50.2	0.0	0.0	2224.9	46.4	-32.5
Sep	304	18.1	7.4	1.2	9.9	18.1	470	28.0	0.0	0.0	2220.6	35.3	-11.1
Oct	302	18.6	5.6	0.8	0.5	3.1	58	3.6	0.0	0.0	2226.0	49.5	14.2
Nov	327	19.5	3.0	0.5	0.5	3.0	59	3.5	0.0	0.0	2230.9	65.0	15.5
Dec	317	19.5	1.7	0.3	0.5	3.1	58	3.6	0.0	0.0	2235.2	80.6	15.6
Total		**241.3**	**67.0**	**16.2**	**89.9**	**86.2**		**176.1**	**65.3**	**0.0**			**-16.3**
Most Probable Inflow Conditions													
Jan	328	20.2	1.7	0.4	0.5	3.1	58	3.6	12.6	0.0	2240.0	100.5	3.6
Feb	349	19.4	2.0	0.5	0.5	2.8	54	3.3	15.6	0.0	2240.0	100.5	0.0
Mar	390	24.0	3.7	1.0	0.5	3.1	58	3.6	10.2	0.0	2242.0	109.7	9.2
Apr	403	24.0	5.9	1.6	0.5	3.0	57	3.5	9.1	0.0	2244.0	119.5	9.8
May	446	27.5	6.1	1.8	2.3	3.1	88	5.4	20.3	0.0	2244.0	119.5	0.0
Jun	406	24.2	7.4	2.2	4.7	3.0	125	7.7	14.3	0.0	2244.0	119.5	0.0
Jul	380	23.4	8.4	2.5	30.2	23.4	870	53.6	0.0	0.0	2236.7	86.8	-32.7

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. Canal (KAF)	Release Req. River (KAF)	Release Req. Total (CFS)	Release Req. Total (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	359	22.1	8.4	2.0	23.8	22.1	745	45.9	0.0	0.0	2229.7	61.0	-25.8
Sep	339	20.2	6.5	1.2	5.7	20.2	420	25.9	0.0	0.0	2227.5	54.1	-6.9
Oct	336	20.7	5.0	0.9	0.5	3.1	58	3.6	0.0	0.0	2232.4	70.3	16.2
Nov	366	21.8	2.7	0.6	0.5	3.0	57	3.5	0.0	0.0	2237.0	88.0	17.7
Dec	354	21.8	1.5	0.4	0.5	3.1	58	3.6	5.3	0.0	2240.0	100.5	12.5
Total		**269.3**	**59.3**	**15.1**	**70.2**	**93.0**		**163.2**	**87.4**	**0.0**			**3.6**
Reasonable Maximum Inflow Conditions													
Jan	409	25.2	1.5	0.4	0.5	3.1	58	3.6	17.6	0.0	2240.0	100.5	3.6
Feb	435	24.2	1.8	0.5	0.5	2.8	59	3.3	20.4	0.0	2240.0	100.5	0.0
Mar	485	29.9	3.3	0.9	0.5	3.1	58	3.6	16.2	0.0	2242.0	109.7	9.2
Apr	502	29.9	5.2	1.4	0.5	3.0	59	3.5	15.2	0.0	2244.0	119.5	9.8
May	557	34.3	5.4	1.6	1.9	3.1	81	5.0	27.7	0.0	2244.0	119.5	0.0
Jun	507	30.2	6.6	2.0	3.8	3.0	114	6.8	21.4	0.0	2244.0	119.5	0.0
Jul	474	29.2	7.5	2.2	22.0	29.2	831	51.2	0.0	0.0	2238.8	95.3	-24.2
Aug	446	27.5	7.5	1.9	17.5	27.5	730	45.0	0.0	0.0	2233.9	75.9	-19.4
Sep	423	25.2	5.8	1.3	4.1	25.2	491	29.3	0.0	0.0	2232.5	70.5	-5.4
Oct	420	25.9	4.4	0.9	0.5	3.1	58	3.6	0.0	0.0	2238.0	91.9	21.4
Nov	456	27.2	2.4	0.6	0.5	3.0	59	3.5	14.5	0.0	2240.0	100.5	8.6
Dec	442	27.2	1.4	0.4	0.5	3.1	58	3.6	23.2	0.0	2240.0	100.5	0.0
Total		**335.9**	**52.8**	**14.1**	**52.8**	**109.2**		**162.0**	**156.2**	**0.0**			**3.6**

Table 27: Davis Creek Reservoir Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions											
Jan	0	0	1.9	0.1	6	0.4	0	0	2053.6	12.1	-0.5
Feb	0	0	2.3	0.1	7	0.4	0	0	2052.8	11.6	-0.5
Mar	0	0	4.1	0.1	6	0.4	0	0	2051.9	11.1	-0.5
Apr	60	3.6	6.6	0.2	7	0.4	0	0	2056.8	14.1	3
May	239	14.7	7	0.3	57	3.5	0	0	2070.2	25	10.9
Jun	240	14.3	8.5	0.5	127	7.6	0	0	2076	31.2	6.2
Jul	239	14.7	9	0.6	297	18.3	0	0	2072.1	27	-4.2
Aug	162	10	7	0.4	273	16.8	0	0	2064.5	19.8	-7.2
Sep	59	3.5	6.1	0.3	133	7.9	0	0	2058.3	15.1	-4.7
Oct	0	0	5.4	0.2	6	0.4	0	0	2057.4	14.5	-0.6
Nov	0	0	2.9	0.1	7	0.4	0	0	2056.7	14	-0.5
Dec	0	0	1.7	0.1	6	0.4	0	0	2055.9	13.5	-0.5
Total		**60.8**	**62.5**	**3**		**56.9**	**0**	**0**			**0.9**
Most Probable Inflow Conditions											
Jan	0	0	1.7	0.1	6	0.4	0	0	2053.6	12.1	-0.5
Feb	0	0	2.2	0.1	7	0.4	0	0	2052.8	11.6	-0.5
Mar	0	0	3.8	0.1	6	0.4	0	0	2051.9	11.1	-0.5
Apr	60	3.6	6.1	0.2	6	0.4	0	0	2056.8	14.1	3
May	239	14.7	6.5	0.2	42	2.6	0	0	2071.2	26	11.9
Jun	198	11.8	7.9	0.5	99	6.1	0	0	2076	31.2	5.2
Jul	179	11	8.4	0.6	231	14.2	0	0	2072.5	27.4	-3.8

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	112	6.9	6.5	0.4	211	13	0	0	2065.8	20.9	-6.5
Sep	10	0.6	5.7	0.3	99	6.1	0	0	2058.3	15.1	-5.8
Oct	0	0	5.1	0.2	6	0.4	0	0	2057.4	14.5	-0.6
Nov	0	0	2.7	0.1	6	0.4	0	0	2056.7	14	-0.5
Dec	0	0	1.6	0.1	6	0.4	0	0	2055.9	13.5	-0.5
Total		**48.6**	**58.2**	**2.9**		**44.8**	**0**	**0**			**0.9**
Reasonable Maximum Inflow Conditions											
Jan	0	0	1.6	0.1	6	0.4	0	0	2053.6	12.1	-0.5
Feb	0	0	2	0.1	7	0.4	0	0	2052.8	11.6	-0.5
Mar	0	0	3.6	0.1	6	0.4	0	0	2051.9	11.1	-0.5
Apr	15	0.9	5.8	0.2	7	0.4	0	0	2052.4	11.4	0.3
May	239	14.7	6.2	0.2	32	2	0	0	2069	23.9	12.5
Jun	206	12.3	7.4	0.4	77	4.6	0	0	2076	31.2	7.3
Jul	114	7	7.9	0.5	172	10.6	0	0	2072.2	27.1	-4.1
Aug	67	4.1	6.2	0.4	156	9.6	0	0	2066.1	21.2	-5.9
Sep	0	0	5.4	0.3	97	5.8	0	0	2058.3	15.1	-6.1
Oct	0	0	4.8	0.2	6	0.4	0	0	2057.4	14.5	-0.6
Nov	0	0	2.5	0.1	7	0.4	0	0	2056.7	14	-0.5
Dec	0	0	1.5	0.1	6	0.4	0	0	2055.9	13.5	-0.5
Total		**39**	**54.9**	**2.7**		**35.4**	**0**	**0**			**0.9**

Table 28: Bonny Reservoir Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. Canal (KAF)	Release Req. River (KAF)	Release Req. Total (CFS)	Release Req. Total (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions													
Jan	5	0.3	2.3	0	0	0.1	2	0.1	0.2	0	3638	0	0
Feb	5	0.3	3.1	0	0	0.1	2	0.1	0.2	0	3638	0	0
Mar	5	0.3	3.9	0	0	0.1	2	0.1	0.2	0	3638	0	0
Apr	7	0.4	6.2	0	0.1	0.1	3	0.2	0.2	0	3638	0	0
May	6	0.4	7.7	0	0.4	0.1	8	0.5	0	0.1	3638	0	0
Jun	7	0.4	10	0	0.5	0.1	10	0.6	0	0.2	3638	0	0
Jul	3	0.2	11.6	0	0.8	0.1	15	0.9	0	0.7	3638	0	0
Aug	2	0.1	10	0	0.6	0.1	11	0.7	0	0.6	3638	0	0
Sep	2	0.1	8.5	0	0.5	0.1	10	0.6	0	0.5	3638	0	0
Oct	2	0.1	7.7	0	0.5	0.1	10	0.6	0	0.5	3638	0	0
Nov	3	0.2	3.9	0	0	0.1	2	0.1	0.1	0	3638	0	0
Dec	5	0.3	2.3	0	0	0.1	2	0.1	0.2	0	3638	0	0
Total		**3.1**	**77.2**	**0**	**3.4**	**1.2**		**4.6**	**1.1**	**2.6**			**0**
Most Probable Inflow Conditions													
Jan	10	0.6	2.1	0	0	0.1	2	0.1	0.5	0	3638	0	0
Feb	10	0.6	2.7	0	0	0.1	2	0.1	0.5	0	3638	0	0
Mar	11	0.7	3.4	0	0	0.1	2	0.1	0.6	0	3638	0	0
Apr	13	0.8	5.5	0	0.1	0.1	3	0.2	0.6	0	3638	0	0
May	15	0.9	6.9	0	0.3	0.1	6	0.4	0.5	0	3638	0	0
Jun	13	0.8	8.9	0	0.3	0.1	7	0.4	0.4	0	3638	0	0

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. Canal (KAF)	Release Req. River (KAF)	Release Req. Total (CFS)	Release Req. Total (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Jul	6	0.4	10.3	0	0.5	0.1	10	0.6	0	0.2	3638	0	0
Aug	5	0.3	8.9	0	0.4	0.1	8	0.5	0	0.2	3638	0	0
Sep	3	0.2	7.5	0	0.3	0.1	7	0.4	0	0.2	3638	0	0
Oct	5	0.3	6.9	0	0.3	0.1	6	0.4	0	0.1	3638	0	0
Nov	8	0.5	3.4	0	0	0.1	2	0.1	0.4	0	3638	0	0
Dec	10	0.6	2.1	0	0	0.1	2	0.1	0.5	0	3638	0	0
Total		**6.7**	**68.6**	**0**	**2.2**	**1.2**		**3.4**	**4**	**0.7**			**0**
Reasonable Maximum Inflow Conditions													
Jan	21	1.3	1.8	0	0	0.1	2	0.1	1.2	0	3638	0	0
Feb	21	1.2	2.4	0	0	0.1	2	0.1	1.1	0	3638	0	0
Mar	23	1.4	3.1	0	0	0.1	2	0.1	1.3	0	3638	0	0
Apr	27	1.6	4.9	0	0	0.1	2	0.1	1.5	0	3638	0	0
May	29	1.8	6.1	0	0.1	0.1	3	0.2	1.6	0	3638	0	0
Jun	27	1.6	7.9	0	0.1	0.1	3	0.2	1.4	0	3638	0	0
Jul	13	0.8	9.2	0	0.1	0.1	3	0.2	0.6	0	3638	0	0
Aug	8	0.5	7.9	0	0.1	0.1	3	0.2	0.3	0	3638	0	0
Sep	5	0.3	6.7	0	0.1	0.1	3	0.2	0.1	0	3638	0	0
Oct	10	0.6	6.1	0	0	0.1	2	0.1	0.5	0	3638	0	0
Nov	18	1.1	3.1	0	0	0.1	2	0.1	1	0	3638	0	0
Dec	18	1.1	1.8	0	0	0.1	2	0.1	1	0	3638	0	0
Total		**13.3**	**61**	**0**	**0.5**	**1.2**		**1.7**	**11.6**	**0**			**0**

Table 29: Enders Reservoir Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions											
Jan	6	0.4	1.5	0.1	3	0.2	0	0	3082.1	8.8	0.2
Feb	5	0.3	1.6	0.1	4	0.2	0	0	3082.1	8.8	0
Mar	5	0.3	2.8	0.1	3	0.2	0	0	3082.1	8.8	0
Apr	5	0.3	6	0.2	3	0.2	0	0	3081.9	8.7	-0.1
May	6	0.4	7.6	0.3	3	0.2	0	0	3081.8	8.6	-0.1
Jun	5	0.3	9.7	0.3	176	10.5	0	10.3	3081.4	8.4	-0.2
Jul	6	0.4	10.6	0.4	532	32.8	0	32.6	3081.1	8.2	-0.2
Aug	6	0.4	9	0.3	505	31.1	0	30.9	3080.9	8.1	-0.1
Sep	5	0.3	6.6	0.2	75	4.5	0	4.3	3080.8	8	-0.1
Oct	5	0.3	4.3	0.1	3	0.2	0	0	3080.8	8	0
Nov	5	0.3	3.1	0.1	3	0.2	0	0	3080.8	8	0
Dec	5	0.3	1.7	0.1	3	0.2	0	0	3080.8	8	0
Total		**4**	**64.5**	**2.3**		**80.5**	**0**	**78.1**			**-0.6**
Most Probable Inflow Conditions											
Jan	8	0.5	1.3	0	3	0.2	0	0	3082.4	8.9	0.3
Feb	7	0.4	1.5	0.1	3	0.2	0	0	3082.5	9	0.1
Mar	6	0.4	2.5	0.1	3	0.2	0	0	3082.7	9.1	0.1
Apr	7	0.4	5.4	0.2	3	0.2	0	0	3082.7	9.1	0
May	8	0.5	6.9	0.3	3	0.2	0	0	3082.7	9.1	0
Jun	7	0.4	8.7	0.3	114	7	0	6.7	3082.4	8.9	-0.2
Jul	8	0.5	9.6	0.4	487	30	0	29.8	3082.1	8.8	-0.1

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	8	0.5	8.1	0.3	388	23.9	0	23.7	3082.1	8.8	0
Sep	7	0.4	6	0.2	36	2.2	0	2	3082.1	8.8	0
Oct	6	0.4	3.8	0.1	3	0.2	0	0	3082.4	8.9	0.1
Nov	7	0.4	2.8	0.1	3	0.2	0	0	3082.5	9	0.1
Dec	6	0.4	1.6	0.1	3	0.2	0	0	3082.6	9.1	0.1
Total		**5.2**	**58.2**	**2.2**		**64.7**	**0**	**62.2**			**0.5**
Reasonable Maximum Inflow Conditions											
Jan	13	0.8	1.2	0	3	0.2	0	0	3082.8	9.2	0.6
Feb	13	0.7	1.3	0	4	0.2	0	0	3083.6	9.7	0.5
Mar	11	0.7	2.3	0.1	3	0.2	0	0	3084.2	10.1	0.4
Apr	12	0.7	4.9	0.2	3	0.2	0	0	3084.6	10.4	0.3
May	13	0.8	6.2	0.2	3	0.2	0	0	3085.2	10.8	0.4
Jun	12	0.7	7.9	0.3	40	2.4	0	0.1	3082.4	8.9	-1.9
Jul	15	0.9	8.7	0.3	297	18.3	0	17.7	3082.4	8.9	0
Aug	13	0.8	7.4	0.3	229	14.1	0	13.6	3082.4	8.9	0
Sep	12	0.7	5.4	0.2	3	0.2	0	0	3082.7	9.2	0.3
Oct	11	0.7	3.5	0.1	3	0.2	0	0	3083.4	9.6	0.4
Nov	12	0.7	2.5	0.1	3	0.2	0	0	3084	10	0.4
Dec	11	0.7	1.4	0.1	3	0.2	0	0	3084.6	10.4	0.4
Total		**8.9**	**52.7**	**1.9**		**36.6**	**0**	**31.4**			**1.8**

Table 30: Enders Reservoir Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. Canal (KAF)	Release Req. River (KAF)	Release Req. Total (CFS)	Release Req. Total (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions													
Jan	19	1.2	1.5	0.3	0	0.1	2	0.1	0	0	2738.8	56.3	0.8
Feb	31	1.7	1.6	0.3	0	0.1	2	0.1	0	0	2739.2	57.6	1.3
Mar	34	2.1	2.9	0.6	0	0.1	2	0.1	0	0	2739.6	59	1.4
Apr	39	2.3	6.3	1.3	0	0.1	2	0.1	0	0	2739.8	59.9	0.9
May	34	2.1	7.5	1.5	0.1	0.1	3	0.2	0	0	2740	60.3	0.4
Jun	27	1.6	9.7	2	4.4	0.9	89	5.3	0	0	2738.3	54.6	-5.7
Jul	15	0.9	9.7	1.9	16.3	6.9	377	23.2	0	0	2730	30.4	-24.2
Aug	8	0.5	9.7	1.4	13.6	6.3	323	19.9	0	9.4	2725	19	-11.4
Sep	3	0.2	7.5	0.9	2	2.1	69	4.1	0	4	2724.6	18.2	-0.8
Oct	6	0.4	4.6	0.5	0	0.1	2	0.1	0	0	2724.5	18	-0.2
Nov	15	0.9	3.2	0.4	0	0.1	2	0.1	0	0	2724.7	18.4	0.4
Dec	16	1	1.7	0.2	0	0.1	2	0.1	0	0	2725	19.1	0.7
Total		**14.9**	**65.9**	**11.3**	**36.4**	**17**		**53.4**	**0**	**13.4**			**-36.4**
Most Probable Inflow Conditions													
Jan	34	2.1	1.3	0.3	0	0.1	2	0.1	0	0	2739.1	57.2	1.7
Feb	52	2.9	1.4	0.3	0	0.1	2	0.1	0	0	2739.8	59.7	2.5
Mar	60	3.7	2.7	0.5	0	0.1	2	0.1	0	0	2740.7	62.8	3.1
Apr	65	3.9	5.8	1.2	0	0.1	2	0.1	0	0	2741.4	65.4	2.6
May	58	3.6	6.9	1.5	0.1	0.1	3	0.2	0	0	2741.9	67.3	1.9
Jun	47	2.8	8.9	1.9	3.8	0.1	63	3.9	0	0	2741.1	64.3	-3

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. Canal (KAF)	Release Req. River (KAF)	Release Req. Total (CFS)	Release Req. Total (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Jul	26	1.6	8.9	1.9	14.2	4.2	299	18.4	0	0	2735.5	45.6	-18.7
Aug	13	0.8	8.9	1.6	11.7	4.1	256	15.8	0	0	2729.5	29	-16.6
Sep	7	0.4	6.9	1	1.7	0.1	29	1.8	0	0	2728.5	26.6	-2.4
Oct	10	0.6	4.2	0.6	0	0.1	2	0.1	0	0	2728.4	26.5	-0.1
Nov	25	1.5	2.9	0.4	0	0.1	2	0.1	0	0	2728.8	27.5	1
Dec	28	1.7	1.6	0.2	0	0.1	2	0.1	0	0	2729.5	28.9	1.4
Total		**25.6**	**60.4**	**11.4**	**31.5**	**9.3**		**40.8**	**0**	**0**			**-26.6**
Reasonable Maximum Inflow Conditions													
Jan	54	3.3	1.2	0.2	0	0.1	2	0.1	0	0	2739.4	58.5	3
Feb	83	4.6	1.3	0.3	0	0.1	2	0.1	0	0	2740.6	62.7	4.2
Mar	94	5.8	2.4	0.5	0	0.1	2	0.1	0	0	2742.1	67.9	5.2
Apr	102	6.1	5.3	1.2	0	0.1	2	0.1	0	0	2743.3	72.7	4.8
May	93	5.7	6.3	1.4	0.1	0.1	3	0.2	0	0	2744.4	76.8	4.1
Jun	74	4.4	8.1	1.8	3.1	0.1	54	3.2	0	0	2744.2	76.2	-0.6
Jul	41	2.5	8.1	1.8	11.6	1.2	208	12.8	0	0	2741	64.1	-12.1
Aug	21	1.3	8.1	1.7	9.6	1.7	183	11.3	0	0	2737.6	52.4	-11.7
Sep	10	0.6	6.3	1.2	1.4	0.1	25	1.5	0	0	2737	50.3	-2.1
Oct	16	1	3.9	0.7	0	0.1	2	0.1	0	0	2737	50.5	0.2
Nov	39	2.3	2.6	0.5	0	0.1	2	0.1	0	0	2737.6	52.2	1.7
Dec	44	2.7	1.4	0.3	0	0.1	2	0.1	0	0	2738.3	54.5	2.3
Total		**40.3**	**55**	**11.6**	**25.8**	**3.9**		**29.7**	**0**	**0**			**-1**

Table 31: Hugh Butler Lake Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions											
Jan	8	0.5	1.3	0.1	3	0.2	0	0	2568.8	18.6	0.2
Feb	11	0.6	1.4	0.1	4	0.2	0	0	2569.1	18.9	0.3
Mar	13	0.8	2.6	0.2	3	0.2	0	0	2569.4	19.3	0.4
Apr	12	0.7	7.2	0.5	3	0.2	0	0	2569.4	19.3	0
May	13	0.8	8.4	0.5	3	0.2	0	0	2569.5	19.4	0.1
Jun	13	0.8	10.3	0.7	29	1.7	0	0	2568	17.8	-1.6
Jul	10	0.6	11.4	0.7	73	4.5	0	0	2563.3	13.2	-4.6
Aug	10	0.6	10.2	0.5	62	3.8	0	1.7	2560.9	11.2	-2
Sep	7	0.4	7.9	0.4	15	0.9	0	0.7	2560.7	11	-0.2
Oct	8	0.5	5	0.2	3	0.2	0	0	2560.8	11.1	0.1
Nov	8	0.5	3	0.1	3	0.2	0	0	2561.1	11.3	0.2
Dec	8	0.5	1.5	0.1	3	0.2	0	0	2561.3	11.5	0.2
Total		**7.3**	**70.2**	**4.1**		**12.5**	**0**	**2.4**			**-6.9**
Most Probable Inflow Conditions											
Jan	11	0.7	1.1	0.1	3	0.2	0	0	2569	18.8	0.4
Feb	14	0.8	1.2	0.1	4	0.2	0	0	2569.4	19.3	0.5
Mar	18	1.1	2.3	0.1	3	0.2	0	0	2570.1	20.1	0.8
Apr	18	1.1	6.4	0.4	3	0.2	0	0	2570.6	20.6	0.5
May	18	1.1	7.5	0.5	3	0.2	0	0	2570.9	21	0.4
Jun	18	1.1	9.2	0.6	23	1.4	0	0	2570.1	20.1	-0.9
Jul	15	0.9	10.2	0.7	62	3.8	0	0	2566.8	16.5	-3.6

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	15	0.9	9	0.5	52	3.2	0	0	2563.8	13.7	-2.8
Sep	10	0.6	7	0.4	13	0.8	0	0	2563.2	13.1	-0.6
Oct	10	0.6	4.4	0.2	3	0.2	0	0	2563.4	13.3	0.2
Nov	12	0.7	2.7	0.1	3	0.2	0	0	2563.8	13.7	0.4
Dec	11	0.7	1.4	0.1	3	0.2	0	0	2564.3	14.1	0.4
Total		**10.3**	**62.4**	**3.8**		**10.8**	**0**	**0**			**-4.3**
Reasonable Maximum Inflow Conditions											
Jan	18	1.1	1	0.1	3	0.2	0	0	2569.3	19.2	0.8
Feb	23	1.3	1.1	0.1	4	0.2	0	0	2570.2	20.2	1
Mar	28	1.7	2.1	0.1	3	0.2	0	0	2571.4	21.6	1.4
Apr	29	1.7	5.8	0.4	3	0.2	0	0	2572.3	22.7	1.1
May	29	1.8	6.9	0.5	3	0.2	0	0	2573.2	23.8	1.1
Jun	30	1.8	8.4	0.6	18	1.1	0	0	2573.3	23.9	0.1
Jul	23	1.4	9.3	0.7	45	2.8	0	0	2571.6	21.8	-2.1
Aug	24	1.5	8.3	0.6	39	2.4	0	0	2570.3	20.3	-1.5
Sep	15	0.9	6.4	0.4	8	0.5	0	0	2570.3	20.3	0
Oct	16	1	4.1	0.3	3	0.2	0	0	2570.7	20.8	0.5
Nov	18	1.1	2.5	0.2	3	0.2	0	0	2571.3	21.5	0.7
Dec	18	1.1	1.3	0.1	3	0.2	0	0	2572	22.3	0.8
Total		**16.4**	**57.2**	**4.1**		**8.4**	**0**	**0**			**3.9**

Table 32: Harry Strunk Lake Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions											
Jan	34	2.1	1.3	0.1	2	0.1	0	0	2361	26.6	1.9
Feb	43	2.4	1.4	0.1	2	0.1	0	0	2362.6	28.8	2.2
Mar	45	2.8	2.5	0.2	2	0.1	0	0	2364.1	31.3	2.5
Apr	45	2.7	7	0.7	2	0.1	0	0	2365.2	33.2	1.9
May	49	3	8.1	0.8	2	0.1	0.7	0	2366.1	34.6	1.4
Jun	50	3	10.1	1.1	89	5.3	0	0	2364.1	31.2	-3.4
Jul	45	2.8	11.2	1.1	318	19.6	0	0	2349.7	13.3	-17.9
Aug	37	2.3	9.8	0.5	268	16.5	0	9.3	2343	7.9	-5.4
Sep	23	1.4	7.7	0.3	27	1.6	0	0.5	2343	7.9	0
Oct	29	1.8	5	0.2	2	0.1	0	0	2345.1	9.4	1.5
Nov	34	2	3	0.1	2	0.1	0	0	2347.3	11.2	1.8
Dec	31	1.9	1.6	0.1	2	0.1	0	0	2349.2	12.9	1.7
Total		**28.2**	**68.7**	**5.3**		**43.8**	**0.7**	**9.8**			**-11.8**
Most Probable Inflow Conditions											
Jan	49	3	1.2	0.1	2	0.1	0	0	2361.7	27.5	2.8
Feb	63	3.5	1.2	0.1	2	0.1	0	0	2363.8	30.8	3.3
Mar	67	4.1	2.3	0.2	2	0.1	0	0	2366.1	34.6	3.8
Apr	65	3.9	6.3	0.7	2	0.1	3.1	0	2366.1	34.6	0
May	70	4.3	7.3	0.8	2	0.1	3.4	0	2366.1	34.6	0
Jun	72	4.3	9.1	1	74	4.4	0	0	2365.4	33.5	-1.1
Jul	67	4.1	10	1	265	16.3	0	0	2356.2	20.3	-13.2

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	54	3.3	8.9	0.6	222	13.7	0	0	2344.9	9.3	-11
Sep	35	2.1	6.9	0.3	20	1.2	0	0	2345.7	9.9	0.6
Oct	44	2.7	4.5	0.2	2	0.1	0	0	2348.6	12.3	2.4
Nov	49	2.9	2.7	0.1	2	0.1	0	0	2351.4	15	2.7
Dec	45	2.8	1.4	0.1	2	0.1	0	0	2353.9	17.6	2.6
Total		**41**	**61.8**	**5.2**		**36.4**	**6.5**	**0**			**-7.1**
Reasonable Maximum Inflow Conditions											
Jan	76	4.7	1.1	0.1	2	0.1	0	0	2362.8	29.2	4.5
Feb	97	5.4	1.1	0.1	2	0.1	0	0	2365.9	34.4	5.2
Mar	102	6.3	2	0.2	2	0.1	5.8	0	2366.1	34.6	0.2
Apr	102	6.1	5.6	0.6	2	0.1	5.4	0	2366.1	34.6	0
May	110	6.8	6.5	0.7	2	0.1	6	0	2366.1	34.6	0
Jun	112	6.7	8.1	0.9	47	2.8	3	0	2366.1	34.6	0
Jul	104	6.4	9	1	182	11.2	0	0	2362.6	28.8	-5.8
Aug	83	5.1	7.9	0.7	154	9.5	0	0	2358.9	23.7	-5.1
Sep	54	3.2	6.2	0.5	2	0.1	0	0	2360.8	26.3	2.6
Oct	67	4.1	4	0.3	2	0.1	0	0	2363.3	30	3.7
Nov	75	4.5	2.4	0.2	2	0.1	0	0	2365.8	34.2	4.2
Dec	71	4.4	1.3	0.1	2	0.1	3.8	0	2366.1	34.6	0.4
Total		**63.7**	**55.2**	**5.4**		**24.4**	**24**	**0**			**9.9**

Table 33: Keith Sebelius Lake Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions											
Jan	2	0.1	1.5	0.1	2	0.1	0	0	2297.1	21.1	-0.1
Feb	4	0.2	1.8	0.2	2	0.1	0	0	2297	21	-0.1
Mar	6	0.4	3	0.3	2	0.1	0	0	2297	21	0
Apr	7	0.4	7.8	0.7	2	0.1	0	0	2296.7	20.6	-0.4
May	10	0.6	8.7	0.8	6	0.4	0	0	2296.3	20	-0.6
Jun	12	0.7	11	1	57	3.4	0	0	2293.8	16.3	-3.7
Jul	8	0.5	12.3	1	146	9	0	3.3	2288.4	10.1	-6.2
Aug	8	0.5	11	0.6	138	8.5	0	8.4	2288.2	9.9	-0.2
Sep	3	0.2	8.7	0.5	27	1.6	0	1.5	2287.8	9.5	-0.4
Oct	2	0.1	6	0.3	2	0.1	0	0	2287.4	9.2	-0.3
Nov	2	0.1	3.3	0.2	2	0.1	0	0	2287.2	9	-0.2
Dec	2	0.1	1.7	0.1	2	0.1	0	0	2287.1	8.9	-0.1
Total		**3.9**	**76.8**	**5.8**		**23.6**	**0**	**13.2**			**-12.3**
Most Probable Inflow Conditions											
Jan	3	0.2	1.4	0.1	2	0.1	0	0	2297.1	21.2	0
Feb	5	0.3	1.6	0.1	2	0.1	0	0	2297.2	21.3	0.1
Mar	10	0.6	2.6	0.2	2	0.1	0	0	2297.4	21.6	0.3
Apr	10	0.6	6.9	0.6	2	0.1	0	0	2297.3	21.5	-0.1
May	16	1	7.7	0.7	3	0.2	0	0	2297.4	21.6	0.1
Jun	20	1.2	9.7	0.9	45	2.8	0	0	2295.8	19.1	-2.5
Jul	15	0.9	10.9	0.9	138	8.5	0	0.4	2289.3	11	-8.1

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	13	0.8	9.7	0.6	112	6.9	0	6.7	2289.3	11	0
Sep	7	0.4	7.7	0.5	21	1.3	0	1.2	2289.1	10.8	-0.2
Oct	3	0.2	5.3	0.3	2	0.1	0	0	2288.9	10.6	-0.2
Nov	3	0.2	2.9	0.2	2	0.1	0	0	2288.8	10.5	-0.1
Dec	3	0.2	1.5	0.1	2	0.1	0	0	2288.8	10.5	0
Total		**6.6**	**67.9**	**5.2**		**20.4**	**0**	**8.3**			**-10.7**
Reasonable Maximum Inflow Conditions											
Jan	8	0.5	1.2	0.1	2	0.1	0	0	2297.3	21.5	0.3
Feb	11	0.6	1.5	0.1	2	0.1	0	0	2297.6	21.9	0.4
Mar	18	1.1	2.4	0.2	2	0.1	0	0	2298.1	22.7	0.8
Apr	20	1.2	6.2	0.6	2	0.1	0	0	2298.4	23.2	0.5
May	31	1.9	6.9	0.7	3	0.2	0	0	2299	24.2	1
Jun	40	2.4	8.7	0.9	27	1.6	0	0	2298.9	24.1	-0.1
Jul	29	1.8	9.8	1	71	4.4	0	0	2296.7	20.5	-3.6
Aug	26	1.6	8.7	0.8	68	4.2	0	0	2294.4	17.1	-3.4
Sep	12	0.7	6.9	0.6	15	0.9	0	0	2293.8	16.3	-0.8
Oct	6	0.4	4.8	0.4	2	0.1	0	0	2293.7	16.2	-0.1
Nov	8	0.5	2.6	0.2	2	0.1	0	0	2293.9	16.4	0.2
Dec	6	0.4	1.3	0.1	2	0.1	0	0	2294	16.6	0.2
Total		**13.1**	**61**	**5.7**		**12**	**0**	**0**			**-4.6**

Table 34: Harlan County Lake Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions											
Jan	37	2.3	1.4	1.5	0	0	0	0	1943.6	287	0.8
Feb	59	3.3	1.6	1.7	0	0	0	0	1943.7	288.6	1.6
Mar	80	4.9	2.8	2.9	0	0	0	0	1943.9	290.6	2
Apr	69	4.1	6.5	6.8	0	0	0	0	1943.7	287.9	-2.7
May	88	5.4	8	8.4	0	0	0	0	1943.4	284.9	-3
Jun	72	4.3	9.5	9.9	375	22.4	0	0	1941.2	257	-28
Jul	73	4.5	10.7	10.8	971	59.8	0	0	1935.2	190.9	-66.1
Aug	58	3.6	9.4	8	853	52.5	0	21	1931.5	154.9	-36
Sep	29	1.7	7.4	5.5	97	5.8	0	5.8	1931	151.1	-3.8
Oct	28	1.7	5.1	3.7	0	0	0	0	1930.8	149.1	-2
Nov	37	2.2	3.2	2.3	0	0	0	0	1930.8	149	-0.1
Dec	36	2.2	2	1.5	0	0	0	0	1930.9	149.7	0.7
Total		**40.2**	**67.6**	**63**		**140.5**	**0**	**26.7**			**-136.5**
Most Probable Inflow Conditions											
Jan	99	6.1	1.2	1.3	0	0	0	0	1943.9	291	4.8
Feb	155	8.6	1.4	1.5	0	0	0	0	1944.5	298.1	7.1
Mar	208	12.8	2.4	2.5	0	0	0	0	1945.2	308.4	10.3
Apr	179	10.7	5.7	6.2	0	0	0	0	1945.6	312.9	4.5
May	226	13.9	7	7.7	0	0	5	0	1945.7	314.1	1.2
Jun	188	11.2	8.4	9.3	64	3.8	0	0	1945.5	312.2	-1.9
Jul	190	11.7	9.4	10.4	700	43.1	0	0	1942.3	270.4	-41.8

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	153	9.4	8.2	8.4	481	29.6	0	0	1939.9	241.8	-28.6
Sep	75	4.5	6.5	6.2	34	2	0	0	1939.6	238.1	-3.7
Oct	71	4.4	4.4	4.2	0	0	0	0	1939.6	238.3	0.2
Nov	96	5.7	2.8	2.7	0	0	0	0	1939.8	241.3	3
Dec	94	5.8	1.8	1.7	0	0	0	0	1940.2	245.4	4.1
Total		**104.8**	**59.2**	**62.1**		**78.5**	**5**	**0**			**-40.8**
Reasonable Maximum Inflow Conditions											
Jan	237	14.6	1.1	1.2	0	0	0	0	1944.6	299.6	13.4
Feb	372	20.7	1.3	1.4	0	0	4.8	0	1945.7	314.1	14.5
Mar	498	30.7	2.1	2.3	0	0	28.4	0	1945.7	314.1	0
Apr	431	25.7	5	5.5	0	0	20.2	0	1945.7	314.1	0
May	544	33.5	6.2	6.9	0	0	26.6	0	1945.7	314.1	0
Jun	451	26.9	7.4	8.2	37	2.2	16.5	0	1945.7	314.1	0
Jul	458	28.2	8.3	9.2	143	8.8	10.2	0	1945.7	314.1	0
Aug	368	22.7	7.3	8.1	136	8.4	6.2	0	1945.7	314.1	0
Sep	181	10.8	5.8	6.4	20	1.2	3.2	0	1945.7	314.1	0
Oct	172	10.6	3.9	4.3	0	0	6.3	0	1945.7	314.1	0
Nov	228	13.6	2.5	2.8	0	0	10.8	0	1945.7	314.1	0
Dec	226	13.9	1.6	1.8	0	0	12.1	0	1945.7	314.1	0
Total		**251.9**	**52.5**	**58.1**		**20.6**	**145.3**	**0**			**27.9**

Table 35: Lovewell Reservoir Operation Estimates – 2021.

Month	White Rock Creek Inflow (KAF)	Courtland Canal Inflow (KAF)	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions													
Jan	0.4	0	6	0.4	1.2	0.3	0	0	0	0	1581.1	31.3	0.1
Feb	0.6	0	11	0.6	1.5	0.3	0	0	0	0	1581.1	31.6	0.3
Mar	1.5	0	24	1.5	2.6	0.6	0	0	0	0	1581.5	32.5	0.9
Apr	1.3	3.2	75	4.5	5.4	1.3	0	0	0	0	1582.6	35.7	3.2
May	1.7	0.9	42	2.6	6.8	1.7	15	0.9	0	0	1582.6	35.7	0
Jun	1.8	9.5	190	11.3	8.9	2.2	168	10	0	0	1582.3	34.8	-0.9
Jul	1.2	15.4	269	16.6	9.6	2.4	505	31.1	0	0	1575.3	17.9	-16.9
Aug	0.1	16.6	271	16.7	7.9	1.3	347	21.4	0	0	1571.8	11.9	-6
Sep	1	2.3	55	3.3	5.9	0.7	47	2.8	0	0	1571.7	11.7	-0.2
Oct	0.7	1.9	42	2.6	4.1	0.5	0	0	0	0	1573	13.8	2.1
Nov	0.6	2.5	52	3.1	3	0.4	0	0	0	0	1574.6	16.5	2.7
Dec	0.4	2.6	49	3	1.5	0.2	0	0	0	0	1576	19.3	2.8
Total	**11.3**	**54.9**		**66.2**	**58.4**	**11.9**		**66.2**	**0**	**0**			**-11.9**
Most Probable Inflow Conditions													
Jan	1	0	16	1	1	0.2	0	0	0	0	1581.3	32	0.8
Feb	1.5	0	27	1.5	1.3	0.3	0	0	0	0	1581.7	33.2	1.2
Mar	3.3	0	54	3.3	2.3	0.5	0	0	0.3	0	1582.6	35.7	2.5
Apr	3	0	50	3	4.7	1.2	0	0	1.8	0	1582.6	35.7	0
May	3.8	0	62	3.8	5.9	1.5	13	0.8	1.5	0	1582.6	35.7	0
Jun	4.1	4.6	146	8.7	7.7	1.9	133	7.9	0	0	1582.2	34.6	-1.1
Jul	2.8	13.5	265	16.3	8.4	2	404	24.9	0	0	1578.2	24	-10.6

Month	White Rock Creek Inflow (KAF)	Courtland Canal Inflow (KAF)	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	0.3	6.5	110	6.8	6.9	1.3	278	17.1	0	0	1572.1	12.4	-11.6
Sep	2.2	0.8	50	3	5.2	0.7	37	2.2	0	0	1572.2	12.5	0.1
Oct	1.5	4.7	101	6.2	3.6	0.5	0	0	0	0	1575.5	18.2	5.7
Nov	1.3	4.1	91	5.4	2.6	0.4	0	0	0	0	1577.8	23.2	5
Dec	0.9	4.6	89	5.5	1.3	0.2	0	0	0	0	1580	28.5	5.3
Total	**25.7**	**38.8**		**64.5**	**50.9**	**10.7**		**52.9**	**3.6**	**0**			**-2.7**
Reasonable Maximum Inflow Conditions													
Jan	2.5	0	41	2.5	0.9	0.2	0	0	0	0	1581.8	33.5	2.3
Feb	3.8	0	68	3.8	1.1	0.3	0	0	1.3	0	1582.6	35.7	2.2
Mar	8.6	0	140	8.6	2	0.5	0	0	8.1	0	1582.6	35.7	0
Apr	7.9	0	133	7.9	4	1	0	0	6.9	0	1582.6	35.7	0
May	9.8	0	159	9.8	5.1	1.3	8	0.5	8	0	1582.6	35.7	0
Jun	10.7	0	179	10.7	6.6	1.6	87	5.2	3.9	0	1582.6	35.7	0
Jul	7.3	0	119	7.3	7.2	1.8	265	16.3	0	0	1578.5	24.9	-10.8
Aug	0.7	0	11	0.7	5.9	1.2	179	11	0	0	1572.8	13.4	-11.5
Sep	5.7	0	96	5.7	4.5	0.6	23	1.4	0	0	1574.9	17.1	3.7
Oct	3.9	4.6	138	8.5	3.1	0.5	0	0	0	0	1578.6	25.1	8
Nov	3.3	0	55	3.3	2.3	0.5	0	0	0	0	1579.8	27.9	2.8
Dec	2.3	0	37	2.3	1.1	0.2	0	0	0	0	1580.6	30	2.1
Total	**66.5**	**4.6**		**71.1**	**43.8**	**9.7**		**34.4**	**28.2**	**0**			**-1.2**

Table 36: Kirwin Reservoir Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions											
Jan	5	0.3	1.3	0.4	0	0	0	0	1727.7	90.5	-0.1
Feb	7	0.4	1.6	0.5	0	0	0	0	1727.7	90.4	-0.1
Mar	13	0.8	2.8	0.8	0	0	0	0	1727.7	90.4	0
Apr	13	0.8	6.4	1.8	0	0	0	0	1727.4	89.4	-1
May	21	1.3	7.9	2.2	8	0.5	0	0	1727.2	88	-1.4
Jun	18	1.1	9.6	2.7	87	5.2	0	0	1725.7	81.2	-6.8
Jul	18	1.1	10.9	2.9	193	11.9	0	0	1722.4	67.5	-13.7
Aug	11	0.7	9.6	2.2	179	11	0	0	1719.1	55	-12.5
Sep	7	0.4	7.4	1.5	8	0.5	0	0	1718.7	53.4	-1.6
Oct	3	0.2	5.1	1.1	0	0	0	0	1718.4	52.5	-0.9
Nov	5	0.3	3	0.6	0	0	0	0	1718.4	52.2	-0.3
Dec	5	0.3	1.6	0.3	0	0	0	0	1718.4	52.2	0
Total		**7.7**	**67.2**	**17**		**29.1**	**0**	**0**			**-38.4**
Most Probable Inflow Conditions											
Jan	18	1.1	1.2	0.3	0	0	0	0	1727.8	91.4	0.8
Feb	29	1.6	1.5	0.4	0	0	0	0	1728.1	92.6	1.2
Mar	45	2.8	2.6	0.7	0	0	0	0	1728.5	94.7	2.1
Apr	50	3	5.8	1.7	0	0	0	0	1728.8	96	1.3
May	80	4.9	7.1	2.1	6	0.4	0.2	0	1729.3	98.2	2.2
Jun	65	3.9	8.7	2.6	71	4.4	0	0	1728.6	95.1	-3.1
Jul	62	3.8	9.8	2.8	193	11.9	0	0	1726.3	84.2	-10.9

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	44	2.7	8.7	2.3	149	9.2	0	0	1724.3	75.4	-8.8
Sep	23	1.4	6.7	1.7	8	0.5	0	0	1724.2	74.6	-0.8
Oct	15	0.9	4.6	1.1	0	0	0	0	1724.2	74.4	-0.2
Nov	20	1.2	2.7	0.7	0	0	0	0	1724.2	74.9	0.5
Dec	16	1	1.5	0.4	0	0	0	0	1724.4	75.5	0.6
Total		**28.3**	**60.9**	**16.8**		**26.4**	**0.2**	**0**			**-15.1**
Reasonable Maximum Inflow Conditions											
Jan	55	3.4	1	0.3	0	0	0	0	1728.3	93.7	3.1
Feb	90	5	1.3	0.4	0	0	0.1	0	1729.3	98.2	4.5
Mar	144	8.9	2.3	0.7	0	0	8.2	0	1729.3	98.2	0
Apr	161	9.6	5.2	1.5	0	0	8.1	0	1729.3	98.2	0
May	253	15.6	6.4	1.9	5	0.3	13.4	0	1729.3	98.2	0
Jun	208	12.4	7.8	2.3	59	3.5	6.6	0	1729.3	98.2	0
Jul	198	12.2	8.8	2.6	167	10.3	0	0	1729.1	97.5	-0.7
Aug	138	8.5	7.8	2.3	119	7.3	0	0	1728.9	96.4	-1.1
Sep	72	4.3	6	1.8	7	0.4	0.3	0	1729.3	98.2	1.8
Oct	47	2.9	4.1	1.2	0	0	1.7	0	1729.3	98.2	0
Nov	64	3.8	2.4	0.7	0	0	3.1	0	1729.3	98.2	0
Dec	49	3	1.3	0.4	0	0	2.6	0	1729.3	98.2	0
Total		**89.6**	**54.4**	**16.1**		**21.8**	**44.1**	**0**			**7.6**

Table 37: Webster Reservoir Operation Estimates – 2021.

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions											
Jan	3	0.2	1.3	0.3	0	0	0	0	1891	71.1	-0.1
Feb	4	0.2	1.5	0.3	0	0	0	0	1891	71	-0.1
Mar	6	0.4	2.9	0.6	0	0	0	0	1891	70.8	-0.2
Apr	10	0.6	6.5	1.4	0	0	0	0	1890.7	70	-0.8
May	15	0.9	8.1	1.7	16	1	0	0	1890.2	68.2	-1.8
Jun	10	0.6	10.3	2.1	107	6.4	0	0	1887.9	60.3	-7.9
Jul	10	0.6	11.4	2.2	253	15.6	0	0	1882.1	43.1	-17.2
Aug	5	0.3	10.5	1.6	227	14	0	0	1875.7	27.8	-15.3
Sep	3	0.2	7.7	0.9	10	0.6	0	0	1875	26.5	-1.3
Oct	2	0.1	5.1	0.6	0	0	0	0	1874.8	26	-0.5
Nov	3	0.2	3.2	0.4	0	0	0	0	1874.7	25.8	-0.2
Dec	2	0.1	1.7	0.2	0	0	0	0	1874.6	25.7	-0.1
Total		**4.4**	**70.2**	**12.3**		**37.6**	**0**	**0**			**-45.5**
Most Probable Inflow Conditions											
Jan	11	0.7	1.1	0.2	0	0	0	0	1891.2	71.7	0.5
Feb	18	1	1.4	0.3	0	0	0	0	1891.4	72.4	0.7
Mar	28	1.7	2.6	0.6	0	0	0	0	1891.7	73.5	1.1
Apr	40	2.4	5.8	1.2	0	0	0	0	1892	74.7	1.2
May	60	3.7	7.3	1.6	13	0.8	0	0	1892.3	76	1.3
Jun	44	2.6	9.3	2	71	4.4	0	0	1891.3	72.2	-3.8
Jul	41	2.5	10.2	2.2	208	12.8	0	0	1887.7	59.7	-12.5

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	24	1.5	9.5	1.8	161	9.9	0	0	1884.4	49.5	-10.2
Sep	15	0.9	6.9	1.2	5	0.3	0	0	1884.2	48.9	-0.6
Oct	8	0.5	4.6	0.8	0	0	0	0	1884.1	48.6	-0.3
Nov	12	0.7	2.8	0.5	0	0	0	0	1884.2	48.8	0.2
Dec	10	0.6	1.5	0.3	0	0	0	0	1884.3	49.1	0.3
Total		**18.8**	**63**	**12.7**		**28.2**	**0**	**0**			**-22.1**
Reasonable Maximum Inflow Conditions											
Jan	55	3.4	1	0.2	0	0	0	0	1891.9	74.4	3.2
Feb	84	4.7	1.3	0.3	0	0	2.6	0	1892.4	76.2	1.8
Mar	131	8.1	2.4	0.5	0	0	7.6	0	1892.4	76.2	0
Apr	190	11.3	5.3	1.2	0	0	10.1	0	1892.4	76.2	0
May	281	17.3	6.7	1.5	6	0.4	15.4	0	1892.4	76.2	0
Jun	203	12.1	8.5	1.9	42	2.5	7.7	0	1892.4	76.2	0
Jul	192	11.8	9.3	2	125	7.7	2.1	0	1892.4	76.2	0
Aug	114	7	8.6	1.9	101	6.2	0	0	1892.1	75.1	-1.1
Sep	67	4	6.3	1.4	2	0.1	1.4	0	1892.4	76.2	1.1
Oct	37	2.3	4.2	0.9	0	0	1.4	0	1892.4	76.2	0
Nov	52	3.1	2.6	0.6	0	0	2.5	0	1892.4	76.2	0
Dec	47	2.9	1.4	0.3	0	0	2.6	0	1892.4	76.2	0
Total		**88**	**57.6**	**12.7**		**16.9**	**53.4**	**0**			**5**

Table 38: Waconda Lake Operation Estimates – 2021

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions											
Jan	29	1.8	1.1	0.8	19	1.2	0	0	1454.5	206.6	-0.2
Feb	43	2.4	1.4	1	20	1.1	0	0	1454.5	206.9	0.3
Mar	83	5.1	2.7	1.9	18	1.1	0	0	1454.7	209	2.1
Apr	86	5.1	6.7	4.8	17	1	0	0	1454.7	208.3	-0.7
May	99	6.1	8.3	5.9	18	1.1	0	0	1454.6	207.4	-0.9
Jun	84	5	10.4	7.4	45	2.7	0	0	1454.2	202.3	-5.1
Jul	138	8.5	12.3	8.6	156	9.6	0	0	1453.3	192.6	-9.7
Aug	50	3.1	10.6	7.1	125	7.7	0	0	1452.3	180.9	-11.7
Sep	39	2.3	8.5	5.4	35	2.1	0	0	1451.8	175.7	-5.2
Oct	29	1.8	5.5	3.4	21	1.3	0	0	1451.5	172.8	-2.9
Nov	34	2	2.9	1.8	27	1.6	0	0	1451.4	171.4	-1.4
Dec	28	1.7	1.4	0.9	24	1.5	0	0	1451.3	170.7	-0.7
Total		**44.9**	**71.8**	**49**		**32**	**0**	**0**			**-36.1**
Most Probable Inflow Conditions											
Jan	88	5.4	1	0.7	10	0.6	3.8	0	1454.6	207.1	0.3
Feb	131	7.3	1.3	0.9	10	0.6	5.8	0	1454.6	207.1	0
Mar	250	15.4	2.4	1.7	10	0.6	10.6	0	1454.8	209.6	2.5
Apr	260	15.5	6.1	4.4	8	0.5	0.8	0	1455.6	219.4	9.8
May	300	18.5	7.5	5.5	10	0.6	12.4	0	1455.6	219.4	0
Jun	255	15.2	9.3	6.8	32	2	6.4	0	1455.6	219.4	0
Jul	416	25.6	11	8.1	112	6.9	10.6	0	1455.6	219.4	0

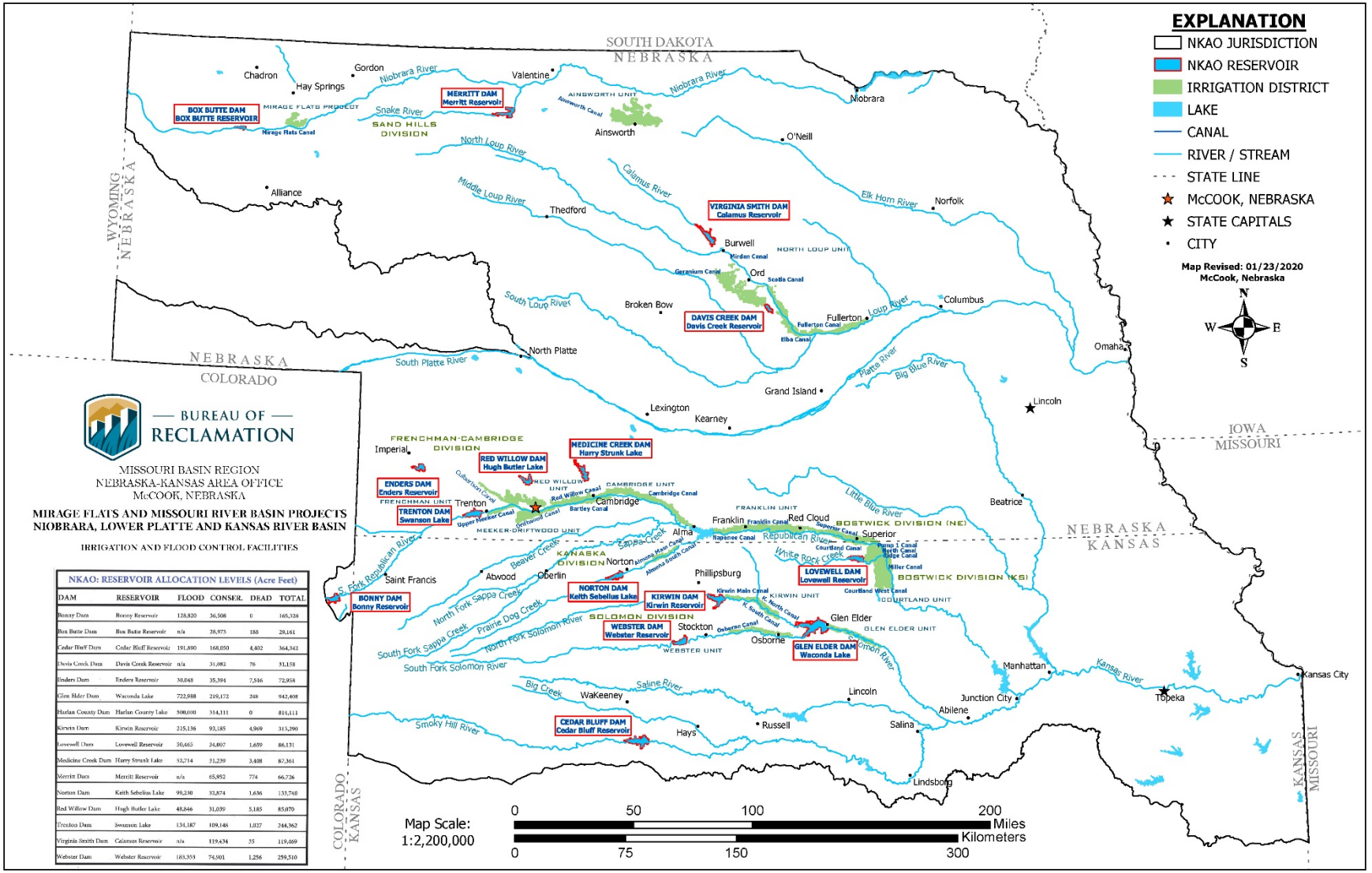
Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	153	9.4	9.5	7	89	5.5	0	0	1455.4	216.3	-3.1
Sep	116	6.9	7.6	5.5	21	1.3	0	0	1455.4	216.4	0.1
Oct	91	5.6	4.9	3.6	10	0.6	0	0	1455.5	217.8	1.4
Nov	102	6.1	2.6	1.9	15	0.9	0	0	1455.7	221.1	3.3
Dec	81	5	1.3	1	13	0.8	17.2	0	1454.6	207.1	-14
Total		**135.9**	**64.5**	**47.1**		**20.9**	**67.6**	**0**			**0.3**
Reasonable Maximum Inflow Conditions											
Jan	299	18.4	0.9	0.6	3	0.2	17.3	0	1454.6	207.1	0.3
Feb	448	24.9	1.2	0.9	4	0.2	23.8	0	1454.6	207.1	0
Mar	846	52.1	2.2	1.6	5	0.3	47.7	0	1454.8	209.6	2.5
Apr	881	52.5	5.6	4	5	0.3	38.4	0	1455.6	219.4	9.8
May	1018	62.7	6.9	5.1	5	0.3	57.3	0	1455.6	219.4	0
Jun	866	51.6	8.6	6.3	22	1.3	44	0	1455.6	219.4	0
Jul	1407	86.7	10.1	7.4	70	4.3	75	0	1455.6	219.4	0
Aug	516	31.8	8.7	6.4	57	3.5	21.9	0	1455.6	219.4	0
Sep	394	23.5	7	5.1	12	0.7	4.9	0	1456.5	232.2	12.8
Oct	307	18.9	4.5	3.4	6	0.4	15.1	0	1456.5	232.2	0
Nov	347	20.7	2.4	1.8	5	0.3	18.6	0	1456.5	232.2	0
Dec	278	17.1	1.2	0.9	5	0.3	41	0	1454.6	207.1	-25.1
Total		**460.9**	**59.3**	**43.5**		**12.1**	**405**	**0**			**0.3**

Table 39: Cedar Bluff Reservoir Operation Estimates – 2021

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Reasonable Minimum Inflow Conditions											
Jan	3	0.2	1.6	0.5	0	0	0	0	2132.7	106.3	-0.3
Feb	4	0.2	1.7	0.5	0	0	0	0	2132.6	106	-0.3
Mar	6	0.4	3	0.8	0	0	0	0	2132.6	105.6	-0.4
Apr	10	0.6	7.7	2.1	0	0	0	0	2132.2	104.1	-1.5
May	15	0.9	9.2	2.5	3	0.2	0	0	2131.9	102.3	-1.8
Jun	17	1	11.3	3.1	3	0.2	0	0	2131.4	100	-2.3
Jul	21	1.3	13.7	3.6	11	0.7	0	0	2130.7	97	-3
Aug	15	0.9	11.7	3	11	0.7	0	0	2130.1	94.2	-2.8
Sep	7	0.4	10	2.5	3	0.2	0	0	2129.5	91.9	-2.3
Oct	2	0.1	7.1	1.7	0	0	0	0	2129.2	90.3	-1.6
Nov	3	0.2	3.3	0.8	0	0	0	0	2129	89.7	-0.6
Dec	2	0.1	1.9	0.5	0	0	0	0	2128.9	89.3	-0.4
Total		**6.3**	**82.2**	**21.6**		**2**	**0**	**0**			**-17.3**
Most Probable Inflow Conditions											
Jan	5	0.3	1.4	0.4	0	0	0	0	2132.7	106.4	-0.1
Feb	7	0.4	1.5	0.4	0	0	0	0	2132.7	106.4	0
Mar	11	0.7	2.7	0.8	0	0	0	0	2132.7	106.3	-0.1
Apr	20	1.2	6.9	1.9	0	0	0	0	2132.6	105.6	-0.7
May	29	1.8	8.3	2.3	2	0.1	0	0	2132.4	105	-0.6
Jun	30	1.8	10.2	2.8	2	0.1	0	0	2132.2	103.9	-1.1
Jul	39	2.4	12.2	3.3	10	0.6	0	0	2131.9	102.4	-1.5

Month	Mean Inflow (CFS)	Inflow Volume (KAF)	Evap (Inches)	Evap (KAF)	Release Req. (CFS)	Release Req. (KAF)	Res. Spill (KAF)	Req. Shortage (KAF)	Res. Elevation (Feet)	Res. Content (KAF)	Res. Change (KAF)
Aug	28	1.7	10.5	2.8	6	0.4	0	0	2131.6	100.9	-1.5
Sep	12	0.7	9	2.4	2	0.1	0	0	2131.2	99.1	-1.8
Oct	5	0.3	6.3	1.7	0	0	0	0	2130.9	97.7	-1.4
Nov	7	0.4	3	0.8	0	0	0	0	2130.8	97.3	-0.4
Dec	5	0.3	1.7	0.4	0	0	0	0	2130.7	97.2	-0.1
Total		**12**	**73.7**	**20**		**1.3**	**0**	**0**			**-9.3**
Reasonable Maximum Inflow Conditions											
Jan	13	0.8	1.3	0.4	0	0	0	0	2132.8	106.9	0.4
Feb	18	1	1.4	0.4	0	0	0	0	2133	107.5	0.6
Mar	31	1.9	2.4	0.7	0	0	0	0	2133.2	108.7	1.2
Apr	50	3	6.2	1.8	0	0	0	0	2133.4	109.9	1.2
May	73	4.5	7.4	2.1	3	0.2	0	0	2133.9	112.1	2.2
Jun	79	4.7	9.1	2.7	3	0.2	0	0	2134.2	113.9	1.8
Jul	101	6.2	10.9	3.2	3	0.2	0	0	2134.8	116.7	2.8
Aug	70	4.3	9.3	2.8	0	0	0	0	2135.1	118.2	1.5
Sep	29	1.7	8	2.5	0	0	0	0	2134.9	117.4	-0.8
Oct	11	0.7	5.7	1.7	0	0	0	0	2134.7	116.4	-1
Nov	15	0.9	2.6	0.8	0	0	0	0	2134.7	116.5	0.1
Dec	11	0.7	1.5	0.5	0	0	0	0	2134.8	116.7	0.2
Total		**30.4**	**65.8**	**19.6**		**0.6**	**0**	**0**			**10.2**

Appendix B Niobrara, Lower Platte, and Kansas Basins Map



NKAO: RESERVOIR ALLOCATION LEVELS (Acre Feet)

DAM	RESERVOIR	FLOOD	CONSER.	DEAD	TOTAL
Bonny Dam	Bonny Reservoir	128,820	36,508	0	165,328
Box Butte Dam	Box Butte Reservoir	n/a	28,973	188	29,161
Cedar Bluff Dam	Cedar Bluff Reservoir	191,890	168,050	4,402	364,342
Davis Creek Dam	Davis Creek Reservoir	n/a	31,082	76	31,158
Enders Dam	Enders Reservoir	30,048	35,394	7,516	72,958
Glen Elder Dam	Waconda Lake	722,988	219,172	248	942,408
Harlan County Dam	Harlan County Lake	500,000	314,111	0	814,111
Kirwin Dam	Kirwin Reservoir	215,136	93,185	4,969	313,290
Lovewell Dam	Lovewell Reservoir	50,465	34,007	1,659	86,131
Medicine Creek Dam	Harry Strunk Lake	52,714	31,239	3,408	87,361
Merritt Dam	Merritt Reservoir	n/a	65,952	774	66,726
Norton Dam	Keith Sebelius Lake	99,230	32,874	1,636	133,740
Red Willow Dam	Hugh Butler Lake	48,846	31,039	5,185	85,070
Trenton Dam	Swanson Lake	134,187	109,148	1,027	244,362
Virginia Smith Dam	Calamus Reservoir	n/a	119,434	35	119,469
Webster Dam	Webster Reservoir	183,353	74,301	1,256	259,510