BUREAU OF RECLAMATION

Niobrara, Lower Platte, and Kansas River Basins

Water Year 2024 Summary of Actual Operations
Water Year 2025 Annual Operating Plans

Annual Operating Plan

Glen Elder Dam, Nebraska

Nebraska Kansas Area Office
Missouri Basin Region

U.S. Department of the Interior

May 2025

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, and affiliated Island Communities.

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.

Cover Image – Picture of Glen Elder Dam spillway replacement on the right abutment of the dam during January 2024. The work is ongoing (Bureau of Reclamation).

Nebraska-Kansas Area Office – Annual Operating Plan

Summary of 2024 Operations
Forecast of 2025 Operations

Nebraska Kansas Area Office
Missouri Basin Region

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U.S. Department of the Interior **May 2025**

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General

This is the seventy-second 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, NE for the 16 dams and reservoirs in Colorado, Nebraska, and Kansas. These reservoirs, together with nine diversion dams, nine pumping plants, and 21 canal systems, serve approximately 258,842 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 the Bureau of Reclamation (Reclamation) or the U.S. Army Corps of Engineers (USACE). 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, NE is used to assist in operational management of all 11 dams under Reclamation's authority 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 collected from both systems includes gate openings and water levels in streams, canals, and reservoirs. Hydromet data is transmitted to a satellite and downloaded to a Reclamation receiver in Boise, ID. 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 the following website: https://www.usbr.gov/gp/hydromet/station_codes_by_state.html.

2024 Summary

Summaries of the 2024 operations of NKAO projects are included in tables A-2 through A-21 in appendix A.

Climatic Conditions

Precipitation at the project dams during 2024 ranged from 71 percent of normal at Box Butte Dam to 120 percent of normal at Red Willow Dam. Annual precipitation was above normal for ten of the project dams.

Temperatures in January and February were generally below normal throughout the project area. Precipitation in January varied at the project dams ranging from zero precipitation (Merritt Dam) to 262 percent of average (Kirwin Dam). February precipitation was generally well above average but again varied, ranging from 36 percent of average (Virginia Smith Dam) to 275 percent of average at Bonny Dam. In March, precipitation and temperatures were near historic average.

Temperatures in April and May were generally around normal. Precipitation during April was generally above average at most project dams. May precipitation was generally above normal with six project dams recording at least five inches and one over eight inches (Davis Creek Dam).

Temperatures in June, July, and August were near normal. Total precipitation in June was below average at all but five project dams. July precipitation was well below average at all but four project dams. August precipitation varied from 29 to 249 percent of average.

September and October precipitation was generally well below average. November precipitation was generally well above average while December was well below average with nine project dams recording zero precipitation.

September through December temperatures were generally above normal.

Storage Reservoirs

Conservation Operations: The 2024 inflows at Bonny and Enders were below the dry-year forecasts. Inflows for Merritt and Calamus were between the normal-year and wet-year forecasts. The remaining reservoirs were between the dry-year and normal-year forecasts.

Of the 16 reservoirs, 13 had below average carryover storage from the 2023 water year. Box Butte and Enders Reservoirs, along with Hugh Butler and Keith Sebelius Lakes did not have sufficient storage to provide water users with a full water supply. Irrigation demands greatly reduced the storage in several project reservoirs throughout the summer. Reservoir storage was below average at 15 of the 16 reservoirs at the end of the 2024 water year.

On September 20, 2011, the State of Colorado ordered that Bonny Reservoir be drained for Republican River Compact compliance. All 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, on the following page, shows a comparison of 2023 and 2024 carry-over storage conditions for all reservoirs in the Niobrara, Lower Platte, and Kansas River Basins as of September 30, 2024.

Table 1.—Summary of carry-over storage at NKAO facilities

Reservoir/Lake	September 30, 2024 Storage (AF)	September 30, 2023 Storage (AF)	Change (AF)
Bonny	0	0	0
Swanson	51,020	26,641	24,379
Enders	7,884	6,655	1,229
Hugh Butler	13,607	10,369	3,238
Harry Strunk	29,362	13,743	15,619
Keith Sebelius	14,685	12,924	1,761
Harlan County	215,465	233,558	-18,093
Lovewell	24,409	16,260	8,149
Kirwin	44,817	72,153	-27,336
Webster	12,608	46,238	-33,630
Cedar Bluff	66,233	87,162	-20,929
Waconda	148,467	165,947	-17,480
Box Butte	10,409	7,306	3,103
Merritt	61,262	39,858	21,404
Calamus	99,084	52,375	46,709
Davis Creek	13,765	13,913	-148

Flood Control Operations: Lovewell Reservoir and Harry Strunk Lake were the only projects to use flood pool storage in 2024. All flood pool storage at the reservoirs was used for irrigation and no flood releases were made.

The water year 2024 flood damage prevented by the operation of Reclamation's Nebraska-Kansas Projects facilities was $99,600 as determined by the USACE. An additional benefit of $127,500 was credited to Harlan County Lake. The cumulative flood control benefits for the years 1951 through 2024 by facilities in this report total $3,005,326,700. 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 Fiscal Year 2024	Prior to 2024	Accumulated Total
Bonny	$0	$2,870,900	$2,870,900
Enders	$0	$3,618,500	$3,618,500
Swanson	$32,100	$51,519,500	$51,551,600
Hugh Butler	$6,400	$13,483,500	$13,489,900
Harry Strunk	$6,400	$26,986,100	$26,992,500
Keith Sebelius	$0	$11,597,600	$11,597,600
Harlan County	$127,500	$396,547,700	$396,675,200
Lovewell	$6,400	$237,495,000	$237,501,400
Kirwin	$12,900	$196,191,600	$196,204,500
Webster	$12,900	$164,763,300	$164,776,200
Waconda	$22,500	$1,711,711,400	$1,711,733,900
Cedar Bluff	$0	$188,314,500	$188,314,500
Total	$227,100	$3,005,099,600	$3,005,326,700

Notes: Accumulated totals from 1951 through 2024. 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 2024 can be found in table A-2 in appendix A.

Water Service

378,493 acre-feet (AF) of water were diverted to irrigate approximately 214,106 acres of project lands in the 11 irrigation districts. Tables A-3 and A-4 in appendix A summarize the acres irrigated and canal diversions by irrigation district. Project water supply was either inadequate or limited for 72,400 acres of the total project lands. This includes lands in Mirage Flats, Frenchman Valley, Frenchman-Cambridge, and Almena Irrigation Districts. The project water supplies for the other districts mentioned in this report were adequate in 2024.

The water requirements of three municipalities, one rural water district, and two fish hatchery facilities were met in 2024. Both storage releases and natural flows were used 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 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 2024 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 past years diminished recreation benefits at these facilities.

2025 Outlook

Three forecast conditions have been developed for each of the reservoirs in the Niobrara, Lower Platte, and Kansas River Basins conforming to established operating criteria under various reservoir inflow conditions. These operation studies are included starting in table A-22 in appendix A. 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, Harlan County, Webster, and Keith Sebelius. The irrigation districts affected are Mirage Flats, Frenchman Valley, Frenchman–Cambridge, Kansas Bostwick, Nebraska Bostwick, Webster, and Almena

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

Under reasonable maximum inflow conditions Frenchman Valley Irrigation District is 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 are expected to fill.

Water is not expected to be stored in Bonny Reservoir during 2025 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 2024 and serves as a guideline for 2025 operations. This report also describes the responsibilities of Reclamation, the USACE, 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 area. 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 USACE. 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 USACE operates and maintains Harlan County Dam and Lake with Reclamation directing releases for irrigation. 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 11 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 USACE 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 (USFWS) administers 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 following state laws and compact requirements.

Water Supply

For forecasting purposes, values of annual inflows were selected that statistically should be met or exceeded ten, 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 2005 through 2024 were used for the analysis of reservoirs in the Niobrara, Lower Platte and Kansas River Basins.

Reservoir Operations

All operations are scheduled for optimal 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 were constructed under the Pick-Sloan Missouri Basin Program and include single and multipurpose reservoirs, diversion dams, pump stations, and canal systems. The 16 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 O&M functions at Kirwin Dam.

Constructed and Operated by the U.S. Army Corps of Engineers

Harlan County Dam in the Kansas River Basin.

Irrigation and Reclamation Districts

11irrigation 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 the 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 1 through September 30. 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 Irrigation District 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’s 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. The State of Colorado's contract with Reclamation expired in 2022 and Colorado did not request renewal.

State of Kansas Department of Wildlife & Parks (KDWP)

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.

Subordination Agreement Considerations

Subordination agreements exist between Reclamation, the Ainsworth Irrigation District, and the Nebraska Public Power District as well as between Reclamation, the Mirage Flats Irrigation District and the Nebraska Public Power District. Provisions of these agreements will be incorporated in operations for the year.

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 above 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 (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 Reclamation and the USACE, the United States was allowed to participate as *amicus curiae*. After 17 months of negotiations, the Final Settlement Stipulation was signed by each respective governor and attorney general and was filed with the Special Master on December 16, 2002. The U.S. Supreme Court approved the settlement and dismissed the case on May 19, 2003.

In the dry period 2005–2006, Nebraska again overused its Compact-allotted share of the Republican River. In 2010, Kansas 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 five and a half million in damages and to take additional action to ensure compliance.

After Kansas' 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 be in effect in 2025.

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.

A data collection platform was installed in May 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.

2024 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 12.30 inches, 71 percent of normal. The 2024 total inflow of 13,565 AF was between the dry-year and most-probable forecast.

The reservoir level began the year at elevation 3,994.51 feet (12.5 feet below the top of conservation). Irrigation diversions began on July 6 and ended on September 6. The reservoir peaked at elevation 4,001.36 (5.6 feet below top of conservation) on July 3. Diversions of 12,813 AF to the Mirage Flats Canal provided irrigation water for approximately 10,756 acres. The farm deliveries from the project water supply totaled 5,959 AF (delivery efficiency of 47 percent). Total reservoir storage was 7,600 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 3,992.03 feet (15.0 feet below the top of conservation).

2025 Outlook

The project water supply is expected to be inadequate in 2025 as it has been since the early 1960s, 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. 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 ft^3/s 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.

2024 Summary

Precipitation, as recorded near Merritt Dam, totaled 16.09 inches, 75 percent of normal. The total yearly inflow of 195,582 AF was between the most-probable and wet-year forecasts. The reservoir level at the beginning of the year was at elevation 2,944.13 feet. The water supply was more than adequate to meet the project's irrigation requirement. There were 81,631 AF diverted from Merritt Reservoir into Ainsworth Canal, with 45,103 AF delivered to the farm head gates (delivery efficiency of 55 percent). There were 34,640 acres of land irrigated in 2024. The reservoir elevation at the end of 2024 was 2,944.06 feet. The district also provided a total of 561 AF of irrigation water from holding ponds located within the district’s service area.

In early 2018, the Missouri Basin Regional drill crew, the Technical Service Center, and NKAO 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. A Risk Reduction Verification Decision Document was completed and indicated that there is justification for enhancements to monitoring movement of material through the right spillway chute drain outfall. After identifying a preferred solution, a project plan will be prepared for implementing/constructing these monitoring enhancements.

In 2022, an issue evaluation was completed to assess the continued sand migration into the spillway underdrains located beneath the upper spillway chute. The risk analysis indicated justification for moving into corrective actions to prevent further sand migration. Repair alternatives will be identified during a corrective action study in 2026.

2025 Outlook

During the winter months, the reservoir will be regulated to maintain elevation 2,944.0 feet (two feet below the top of conservation capacity). Releases from Merritt Reservoir are typically regulated to fill the conservation capacity during the early spring to alleviate erosive action to the lands around the reservoir and to maximize all benefits associated with the reservoir. This filling generally takes place during April. In 2025, the reservoir elevation will be held half a foot below conservation due to the ongoing Safety of Dams project mentioned in the previous section. 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 ft^3/s will be made to the Snake River typically beginning 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 2025.

North Loup Division in Nebraska

General

The North Loup Division is in the Loup River drainage basin. Water is diverted from both the Calamus and North Loup Rivers for the irrigation of approximately 56,100 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 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 to be bypassed as required in the authorizing legislation.

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. In 2016, the wintering elevation was increased by eight feet to conduct a five-year groundwater study. In 2021, the study was extended three additional years. In 2024, Reclamation's Missouri Basin Regional Office finalized the study after reviewing seven years of well data. The report concluded that there was no discernable trend in groundwater elevations in the study area near Davis Creek. Off season seepage and evaporation has historically resulted in a reservoir drawdown of two and a half to three feet requiring an end of September reservoir level of 2,050.0 feet or less. The carry-over content at this 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.

2024 Summary

Precipitation at Virginia Smith Dam was 21.05 inches, 83 percent of normal for the year. The inflow totaled 281,347 AF which was between the normal-year and wet-year forecasts. The reservoir level at the first of the year was elevation 2,240.10 feet (3.9 feet below the top of conservation). The conservation pool filled on March 31. The water supply was more than adequate for the district's needs. A total of 113,698 AF of water was released into Mirdan Canal and 10,101 AF was diverted through Kent Canal from the North Loup River. A total of 37,448 AF was diverted for district use above Davis Creek Reservoir. The farm head gate delivery was 24,337 AF (delivery efficiency of 65 percent). Land irrigated above Davis Creek Reservoir in 2024 totaled 34,688 acres. The Calamus Fish Hatchery used bypassed natural flows and storage from the reservoir totaling 1,693 AF. Calamus Reservoir inflows were bypassed during July, August, and September as required. The elevation at the end of the year was 2,239.68 feet (4.3 feet below the top of conservation).

The precipitation total of 29.31 inches near Davis Creek Dam was 112 percent of normal. Inflow to Davis Creek Reservoir totaled 55,942 AF during 2024. The reservoir elevation at the first of

the year was 2,056.21 feet. Beginning in mid-April, Davis Creek Reservoir was filled to a peak elevation of 2,076.40 feet on July 9 using diversions from Calamus Reservoir and the North Loup River. A release of 44,769 AF was made from Davis Creek Dam into Fullerton Canal, with 17,072 AF delivered to the farm head gates, which is a 38 percent delivery efficiency. There were 21,422 acres irrigated below Davis Creek Reservoir. The reservoir elevation at the end of 2024 was 2,056.37 feet, 19.6 feet below the top of conservation.

2025 Outlook

Filling of Calamus Reservoir will continue through late winter and early spring. The reservoir will be allowed to fill to elevation 2,244.0 feet (top of conservation capacity) in late March or April. This reservoir level will be maintained 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 34,500 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.

Requirements for the fish hatchery will be met in full in 2025.

Chapter III – Republican River Basin

Armel Unit, Upper Republican Division in Colorado

General

Historically Bonny Reservoir has been operated for recreation and fish and wildlife support, although water has been available for water rights administration and irrigation purposes. The State of Colorado's contract with Reclamation expired in 2022 and Colorado did not request renewal.

Bonny Reservoir inflows from the South Fork of the Republican River and Landsman Creek have historically been released into Hale Ditch as requested by the Colorado State Engineer. Hale Ditch water rights were purchased in 2019 by the Republican River Water Conservation District for Compact compliance. In 2022, the district formally notified Reclamation that they no longer intend to operate Hale Ditch.

In September 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.

2024 Summary

The annual precipitation total of 20.84 inches at Bonny Dam was 118 percent of average. The annual computed inflow of 1,692 AF to Bonny Reservoir was below the dry-year forecast. Bonny Reservoir remains drained, and inflows continue to be bypassed for the purpose of compact compliance in 2024.

As directed by the Colorado State Water Commissioner, water was to be bypassed through the reservoir into the South Fork Republican River as ordered by the Colorado State Engineer for compact compliance.

2025 Outlook

The State of Colorado's order to release all the storage in Bonny Reservoir for Republican River Compact compliance remains in effect.

The Colorado State Water Commissioner is expected to direct that water be bypassed into the South Fork Republican River again in 2025.

Frenchman Unit, Frenchman-Cambridge Division in Nebraska

General

The Culbertson Canal serves 9,292 acres in the Frenchman Valley 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.

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 4,000 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.

2024 Summary

The annual precipitation total of 19.70 inches at Enders Dam was 102 percent of normal. The 2024 inflow into Enders Reservoir of 3,664 AF was below the dry-year forecast. The reservoir level began the year at 3,080.75 feet (31.6 feet below the top of conservation). This was second lowest start of the year elevation recorded since initial filling and is 0.75 feet above the outlet works intake sill (deadpool).

After accelerated coatings failure was noticed in the similarly dry outlet works at Bonny Dam, NKAO Maintenance staff determined it would be prudent to keep the outlet works full. In addition, inflow projections for Enders have continually decreased. Therefore, NKAO determined that rehabilitation of the pump-back system would be beneficial. The pump-back system was put back into service in May of 2023 to recapture seepage out of the reservoir. Approximately 1,497 AF was pumped into Enders in 2024. The reservoir level increased gradually during the spring to a peak elevation of 3,082.31 feet on May 24.

Evaporation decreased the reservoir level from July through mid-October reaching elevation 3,079.86 feet on October 18. 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 3,080.64 feet (31.7 feet below the top of conservation). A daily plot of the reservoir elevation is shown in figure 1.

The Frenchman Valley Irrigation District did not divert the natural flow from Frenchman Creek in 2024.

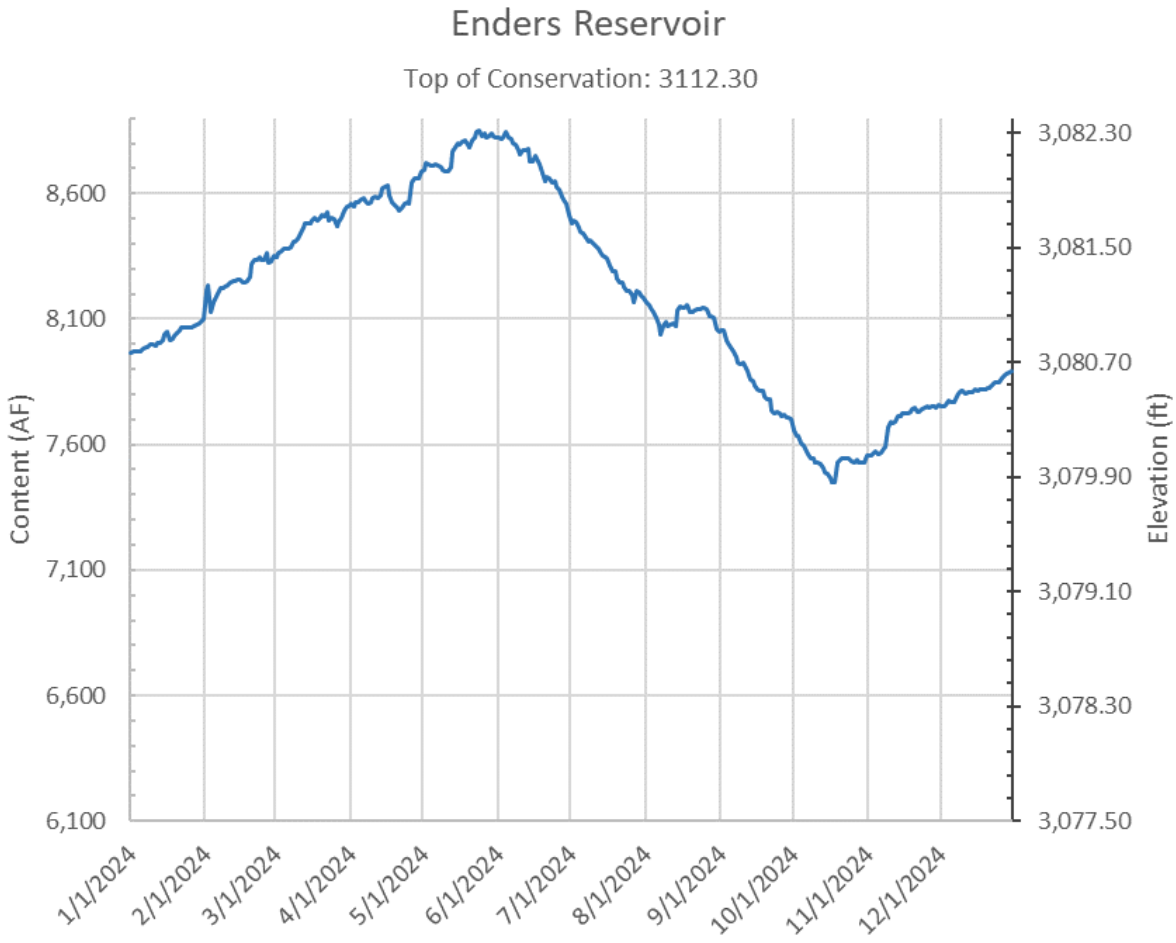

Figure 1.—Enders Reservoir elevation and content.

2025 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 approximately 37,700 AF. Normal-year conditions are expected to be inadequate by 32,500 AF, and wet-year conditions by 18,600 AF, to irrigate the 9,292 acres in the Frenchman Valley Irrigation District.

The Frenchman Valley Irrigation District is investigating possible alternatives for the most efficient use of the declining water supply in the basin.

On February 4, 2025, the Frenchman Valley board voted to pursue title transfer of the Culbertson Canal, Culbertson Diversion dam, dam tender house, and Frenchman Valley Irrigation District main office. After title transfer, Frenchman Valley Irrigation District will likely seek to cancel their water supply contract with Reclamation for Enders Dam.

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 open ditch laterals with buried pipe, where economically feasible, significantly increasing both system and on-farm efficiencies.

2024 Summary

The annual precipitation total of 20.32 inches at Trenton Dam was 100 percent of normal. The inflow of 25,249 AF to Swanson Lake was between the dry-year forecast and most probable. The lake level began the year at elevation 2,738.64 feet (13.4 feet below the top of conservation) and gradually increased throughout the late winter and spring to a yearly peak elevation of 2,742.90 ft on June 8. Irrigation releases started June 24. The irrigation releases decreased the reservoir level to an elevation of 2,737.59 on September 3. Evaporation exceeded inflows in the early fall and reached a fall low elevation of 2,736.64 feet on November 6. In late fall, inflows exceeded evaporation leading to an end of year elevation of 2,737.24 feet (14.8 feet below the top of conservation). The district diverted 14,686 AF into Meeker-Driftwood Canal and delivered 6,298 AF to 6,750 acres of district lands (a delivery efficiency of 43 percent). A daily plot of the reservoir elevation is shown in figure 2. Trenton Dam prevented $32,100 of downstream flood damages during 2024 according to the USACE.

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 2024.

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 eight 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 the spring of 2024 and late fall of 2024 for compact compliance.

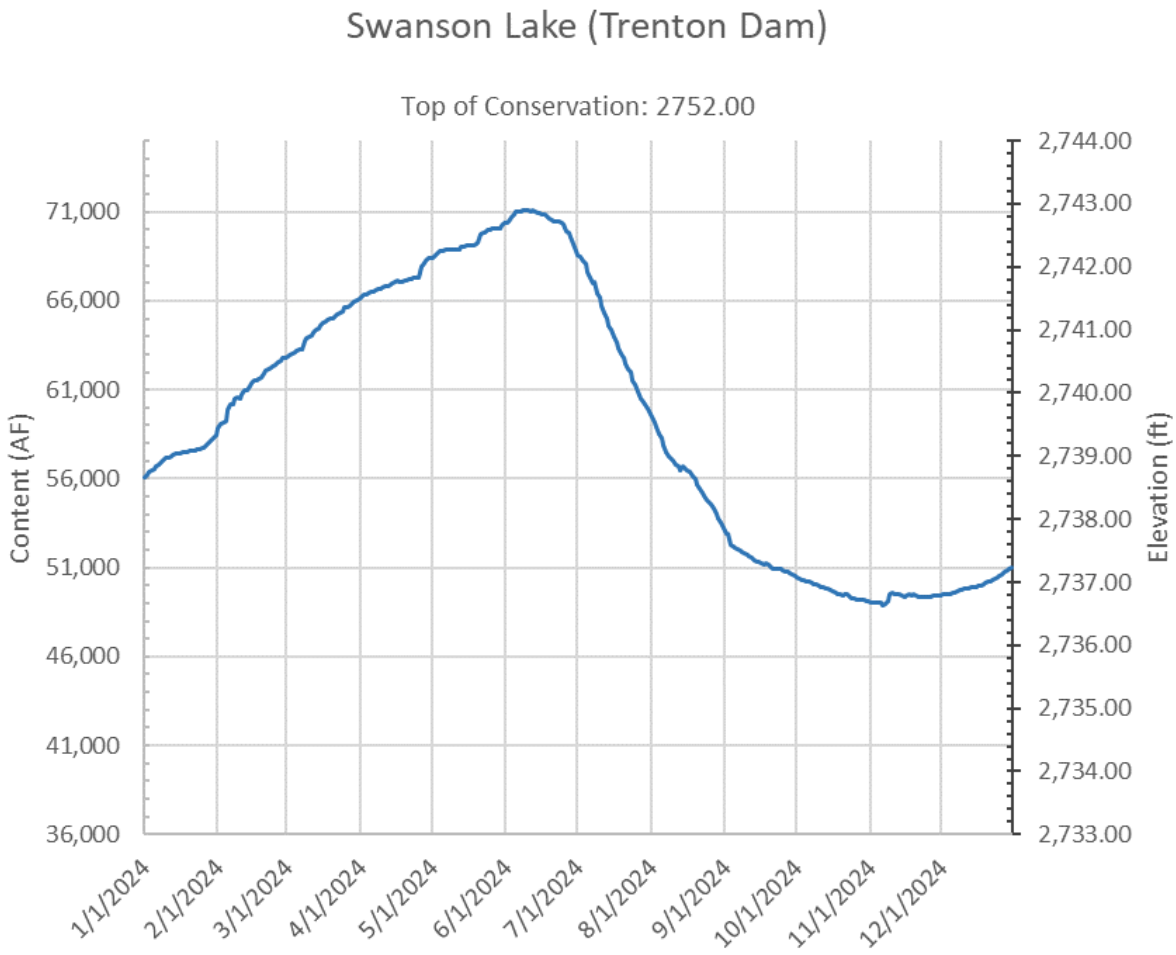

Figure 2.—Swanson Lake elevation and content.

The annual precipitation total at Red Willow Dam was 23.97 inches (120 percent of normal). The annual inflow of 7,845 AF into Hugh Butler Lake was between the dry-year and normal year forecast. The reservoir level at the first of the year was 2,566.63 feet (15.2 feet below the top of conservation). Irrigation releases started June 23. The irrigation releases decreased the reservoir level to elevation of 2,536.38 on August 29. Evaporation exceeded inflows in the early fall and

reached a fall low elevation of 2,562.86 feet on October 18. In late fall, inflows exceeded evaporation leading to an end of year elevation of 2,563.79 feet (18.0 feet below the top of conservation). The District diverted 4,251 AF into Red Willow Canal and delivered 1,180 AF to 1,600 acres of district lands (a delivery efficiency of 28 percent). Bartley Canal diverted 6,863 AF and delivered 1,956 AF to 3,064 acres of district lands (a delivery efficiency of 28 percent). A daily plot of the reservoir elevation is shown in figure 3.

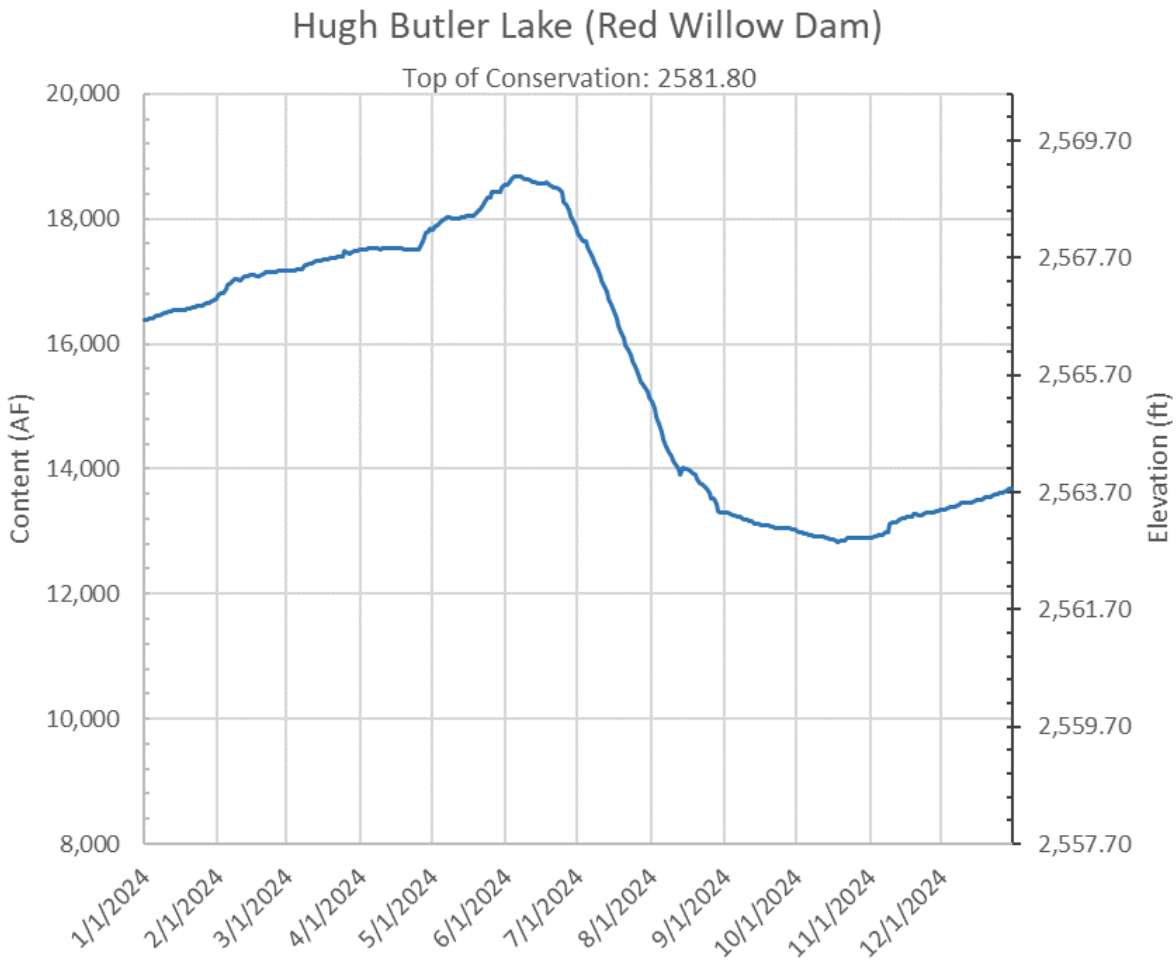

Figure 3.—Hugh Butler Lake elevation and content.

The annual precipitation total of 25.44 inches at Medicine Creek Dam was 120 percent of normal. The inflow of 32,505 AF was between the dry-year and average forecast. The reservoir level at the beginning of the year was 2,361.96 feet (4.1 feet below the top of conservation). The reservoir filled on March 22 and a minimum gate release was initiated to keep water from going over the uncontrolled spillway. On April 15 the Nebraska Department of Natural Resources

issued an administration notice for all Reclamations reservoirs upstream of Harlan County. Frenchman-Cambridge Irrigation District elected to release the combined inflows of Reclamation reservoirs from Harry Strunk exclusively. Approximately 3,440 AF was released before the notice was lifted on April 26. Minimum gate opening releases were maintained to flush Cambridge canal until May 1 when releases ceased. The reservoir filled again on May 4 and a minimum gate release was initiated on May 7. Irrigation releases started May 9. The reservoir level peaked at elevation 2,366.71 feet (0.61 feet above conservation) on June 5. Irrigation releases drew the lake down to elevation 2,358.10 feet on September 6 when releases ceased. A daily plot of the reservoir elevation is shown in figure 4.

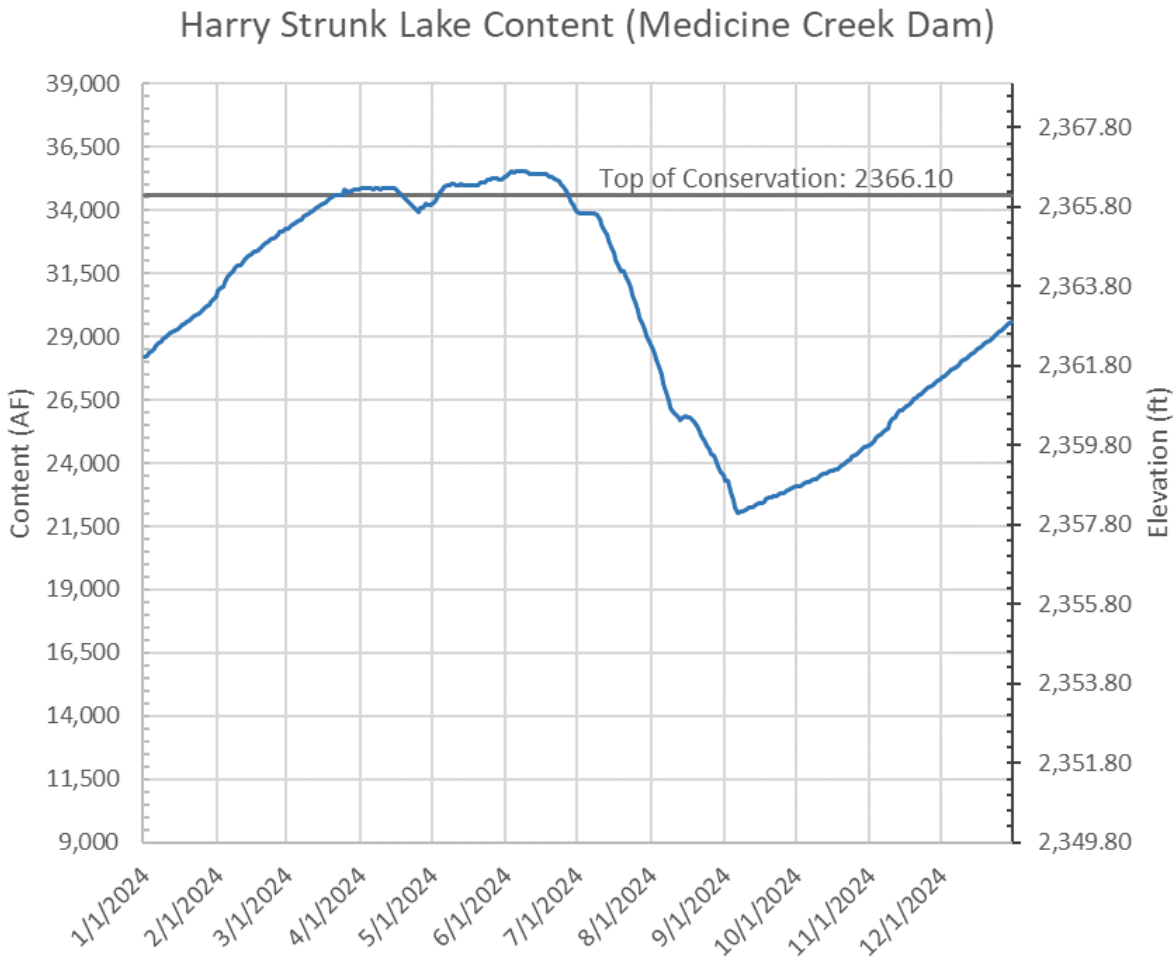

Figure 4.—Harry Strunk Lake elevation and content.

The district diverted 23,195 AF into Cambridge Canal and delivered 10,812 AF to 13,750 acres of district lands (a delivery efficiency of 47 percent). The end of year elevation was 2,362.98 feet (3.1 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. The N-CORPE has constructed an augmentation project that pumps groundwater from Lincoln County into the 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 ft^3/s (63,000 AF annually). The augmentation project was not operated in 2024.

2025 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 32,500 AF. The water supply will be inadequate for the average irrigation requirement by 2,000 AF. The supply will be adequate for 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 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.

2024 Summary

The annual precipitation at Norton Dam totaled 28.61 inches, 114 percent of normal. The total inflow of 5,616 AF was between the dry and average year forecast. The reservoir elevation was 2,294.55 feet (9.8 feet below the top of conservation) at the first of the year. Late winter, spring and summer inflows gradually increased the lake level to a summer peak of 2,296.00 feet on June 5. Irrigation releases began July 15 and finished for the season on August 8. Approximately 2,489 AF was released from Norton Dam for irrigation, of which 1,753 AF was diverted into the Almena Canal with an additional 590 AF diverted from Prairie Dog Creek below the diversion dam. Approximately 1,058 AF was delivered to farms for an efficiency of 45 percent. Inflows in November and December exceeded evaporation, gradually increasing the elevation to the end of year elevation of 2,292.61 feet (11.7 feet below the top of conservation). A daily plot of the reservoir elevation is shown in figure 5.

The city of Norton used 317 AF of municipal water during 2024.

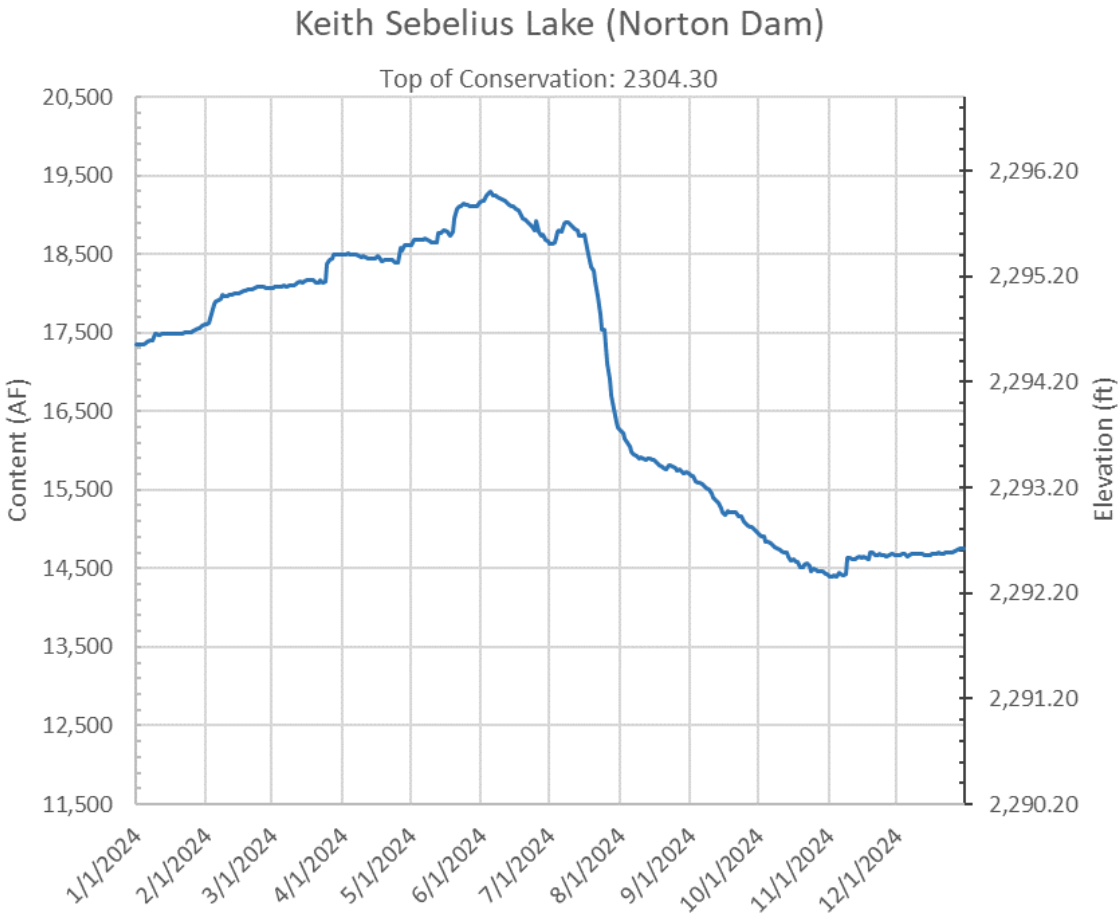

Figure 5.—Keith Sebelius Lake elevation and content.

2025 Outlook

If 2025 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 18,500 AF. If normal inflow into the lake and normal rainfall over the irrigated area occur in 2025, a shortage of 13,100 AF may be experienced. The water supply will be adequate under wet-year conditions. The district has indicated they plan to irrigate from both Prairie Dog Creek and the Almena Canal in 2025. The district has also indicated they plan to eventually abandon the canal. Requirements for the City of Norton will be met in full in 2025.

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. 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 from 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 ten ft^3/s 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 five ft^3/s depending on reservoir levels.

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

The Kansas Department of Wildlife and Parks has requested that the KBID and Reclamation maintain, when possible, a flow of 20 ft^3/s 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 – 2024 Summary

The annual precipitation at Harlan County Dam totaled 24.87 inches of rainfall, 106 percent of normal. The 2024 inflow of 104,720 AF was between the minimum and average-year forecast. Harlan County Lake began 2024 at 1,937.98 feet (7.8 feet below the top of conservation).

The conservation pool did not fill in 2024 and peaked at 1,943.07 feet (2.7 feet below top of conservation) on June 20. Irrigation releases started June 13 and finished on September 15. Irrigation releases drew the lake elevation to 1,937.53 feet. Evaporation exceeded inflows during the early fall and the yearly low of 1,937.02 feet occurred on November 1. Inflows in the later part of the fall exceeded evaporation. The end of year elevation was 1,937.59 feet (8.1 feet below the top of conservation). A plot of the reservoir elevation is shown in figure 6.

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 for a period of three years. In the agreement, account balances of the districts carry-over from year to year and inflows are apportioned based on target account balances. This agreement expired at the end of 2021. On March 3, 2022, a new perpetual agreement, based on the 2018 agreement, was signed.

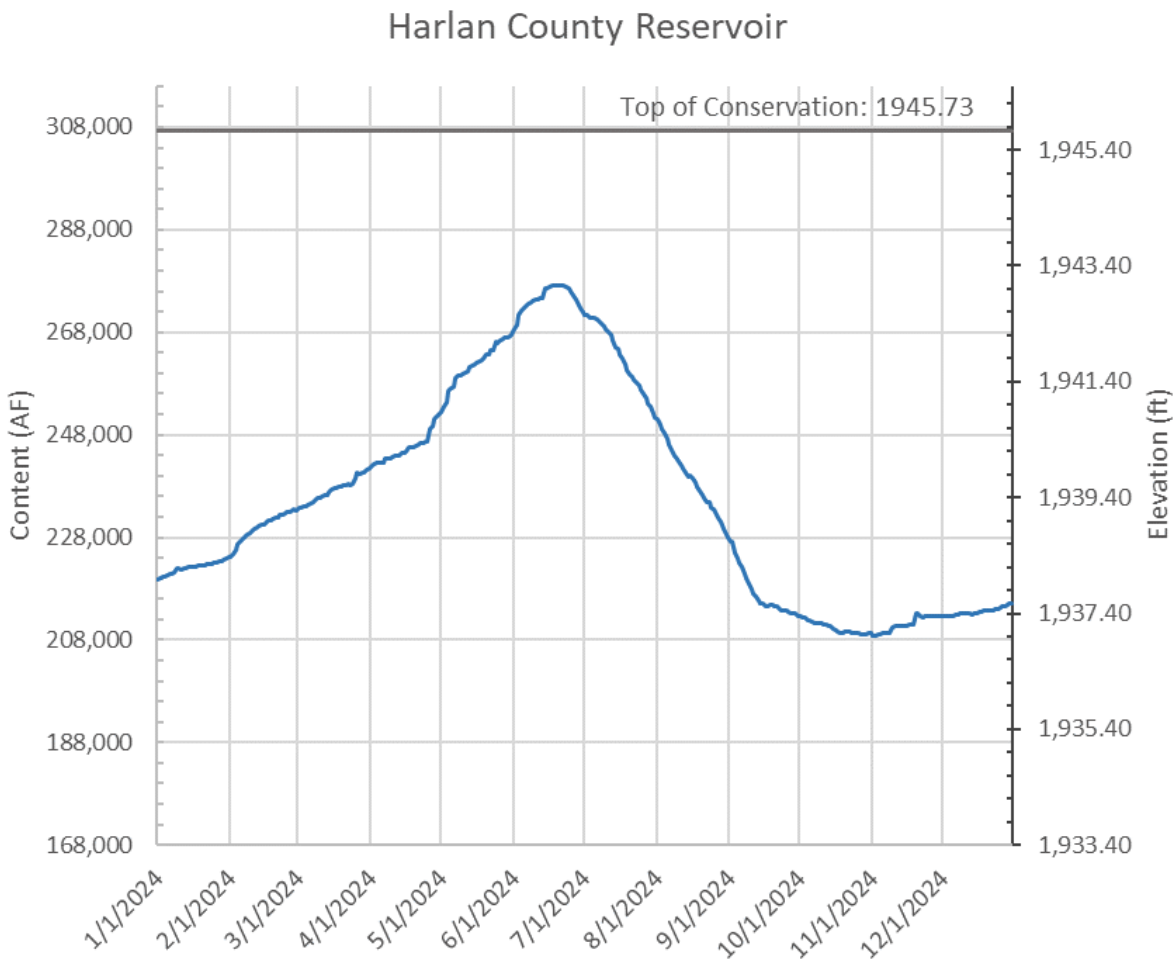

Figure 6.—Harlan County Lake elevation and content.

Harlan County Lake prevented $127,500 of downstream flood damages during 2024 according to the USACE.

Irrigation releases from Harlan County Lake into Franklin and Naponee Canals totaled 20,113 AF. Approximately 7,012 AF was delivered to farms for an efficiency of 35 percent.

Approximately 39,189 AF was delivered to Lovewell Reservoir via the Courtland Canal during 2024. This accounted for approximately 81 percent of the total Lovewell Reservoir inflow.

Bostwick Division – Nebraska – 2024 Summary

Irrigation diversions were made into Franklin, Naponee, Franklin Pump, Superior, and Courtland Canals in Nebraska in 2024. On May 31, Nebraska Bostwick transferred 2,011 AF to Kansas Bostwick's account in Harlan County to ensure Kansas' water supply exceeded 68,000 AF and thereby induced five-year average compliance testing for the State of Nebraska. The district diverted 32,828 AF of water for approximately 19,688 acres, and delivered 12,103 AF to the farm head gates (37 percent delivery efficiency).

Bostwick Division – Kansas – 2024 Summary

The 2024 precipitation at Lovewell Dam totaled 21.54 inches, 77 percent of normal. The total annual inflow recorded at Lovewell Reservoir was 48,571 AF. Approximately 10,526 AF of the inflow was from White Rock Creek, which was between the dry-year and normal-year forecasts. The reservoir elevation at the beginning of 2023 was 1,580.13 feet (two and a half feet below top of conservation). Rains in early June raised the lake elevation to a yearly peak of 1,584.83 (2.2 feet above top of conservation). All flood water accumulations were utilized for irrigation. Irrigation releases for canal seasoning/flushing began May 30 with releases in earnest starting mid-June and continuing until September 16. Irrigation releases lowered the lake to an annual low of 1,573.27 (9.3 feet below conservation) on August 30. 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 1,578.87 feet (3.7 feet below top of conservation). A plot of the reservoir elevation is shown in figure 7, on the following page.

The KBID diverted a total of 62,869 AF to serve 12,401 acres above Lovewell Dam and 27,882 acres below Lovewell Dam. District farm delivery totaled 40,610 AF (efficiency of 65 percent). Lovewell Reservoir prevented $6,400 in downstream flood damages during 2024 according to the USACE.

In 2022, KBID completed automation of the Courtland Canal from Guide Rock Diversion Dam to Lovewell Reservoir. This allows the district to minimize bypass at the diversion dam, while also taking advantage of additional flow in the Republican River during runoff events. In 2024, KBID finished automation of all major structures on the Lower Courtland Canal below Lovewell.

Bostwick Division – 2025 Outlook

The storage in Harlan County Lake is expected to be inadequate in meeting the full dry-year irrigation requirement by 1,800 AF. 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.

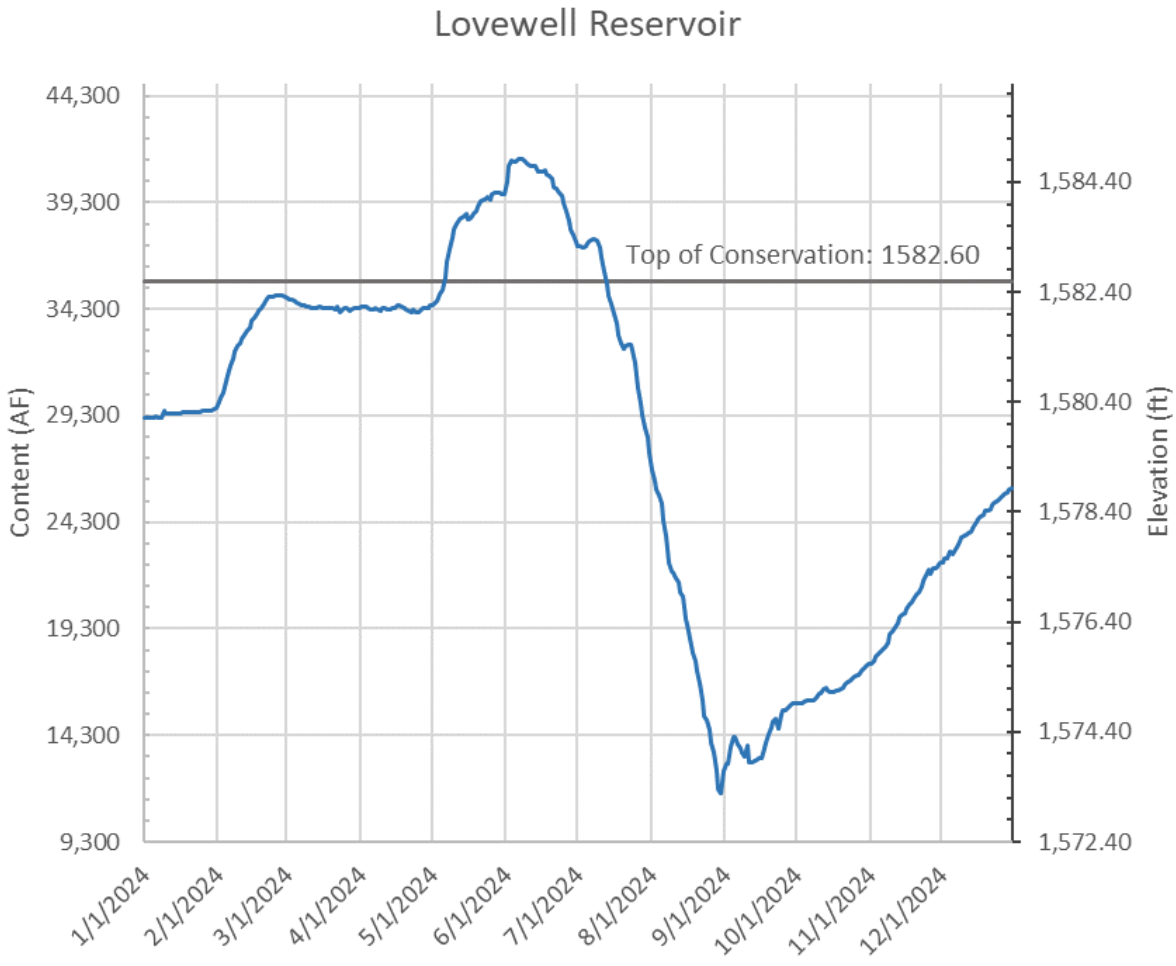

Figure 7.—Lovewell Reservoir elevation and content.

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

2024 Summary

The annual precipitation total of 26.79 inches at Kirwin Dam was 112 percent of normal. The inflow of 15,942 AF was between the dry and average-year forecast. The reservoir level was 1,720.09 feet (9.2 feet below the top of conservation) at the first of the year. The reservoir peaked at elevation 1,721.91 feet on June 5. Irrigation started June 24 and continued through August 30. The reservoir level gradually decreased throughout the fall and early winter to a minimum elevation of 1,715.95 feet on November 1. The reservoir level increased as inflow exceeded evaporation to elevation 1,716.23 feet on December 31 (13.0 feet below the top of conservation). A daily plot of the reservoir elevation is shown in figure 8 on the following page. Kirwin Dam prevented $12,900 of downstream flood damages during 2024 according to the USACE.

A total of 16,455 AF was released into Kirwin Canal to irrigate 9,397 acres of project lands. Approximately 7,368 AF was delivered to farms (45 percent efficiency).

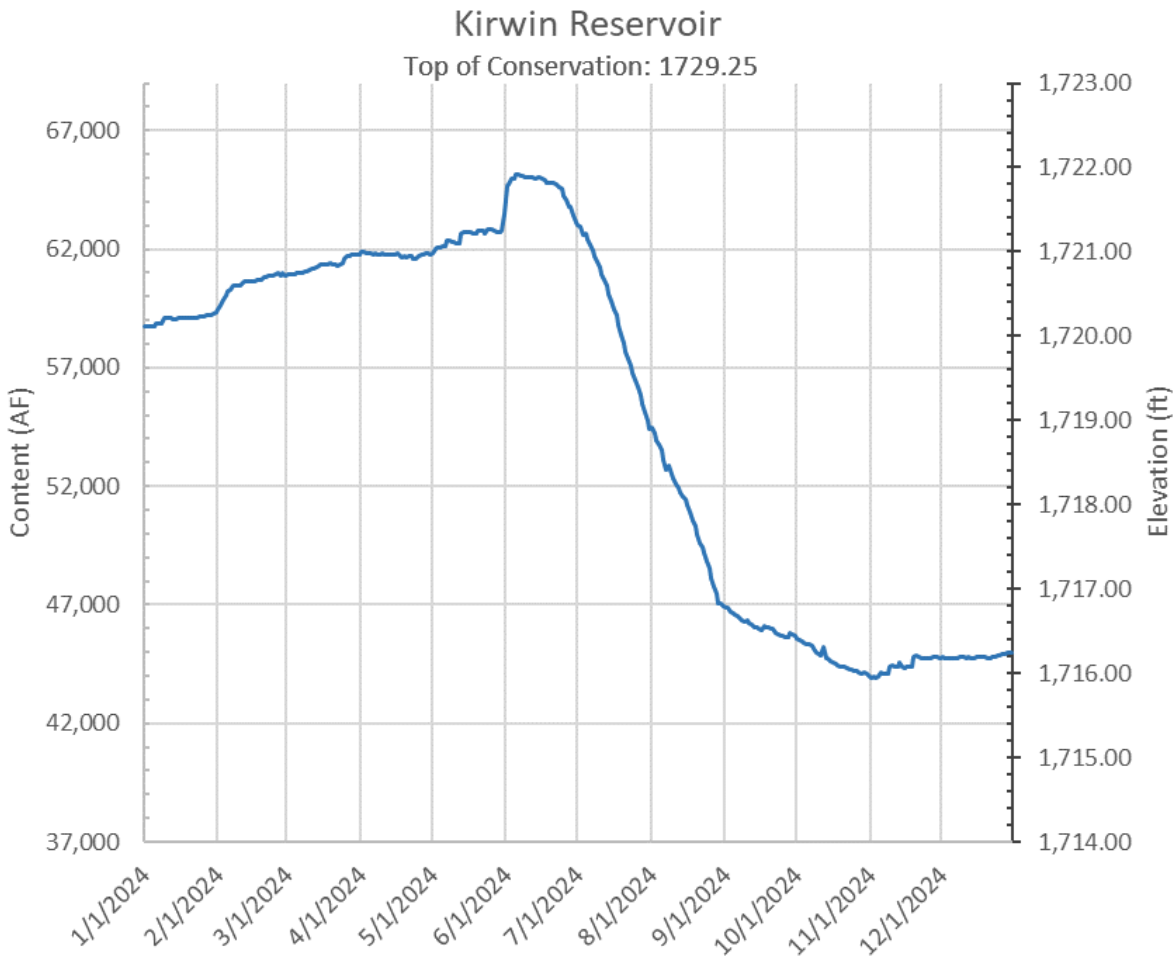

Figure 8.—Kirwin Reservoir elevation and content.

2025 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.

2024 Summary

In 2024, the precipitation at Webster Dam was 90 percent of normal (21.48 inches). The inflow of 9,086 AF was between the dry and average-year forecast. The reservoir level was 1,876.77 feet (15.7 feet below the top of conservation pool) at the first of the year. The reservoir climbed to a yearly peak of 1,878.67 feet (13.8 feet below top of conservation) on May 30. Irrigation releases started June 17 and continued until August 29.

The reservoir level gradually decreased throughout the fall to a minimum elevation of 1,866.77 feet on November 1. The reservoir level increased as inflow narrowly exceeded evaporation to elevation 1,866.99 feet on December 31 (25.5 feet below the top of conservation). A daily plot of the reservoir elevation is shown in figure 9 below. Webster Dam prevented $12,900 of downstream flood damages during 2024 according to the USACE.

A total of 12,541 AF was diverted into Osborne Canal to irrigate 5,612 acres of project lands. Farm delivery was 6,362 AF (51 percent efficiency).

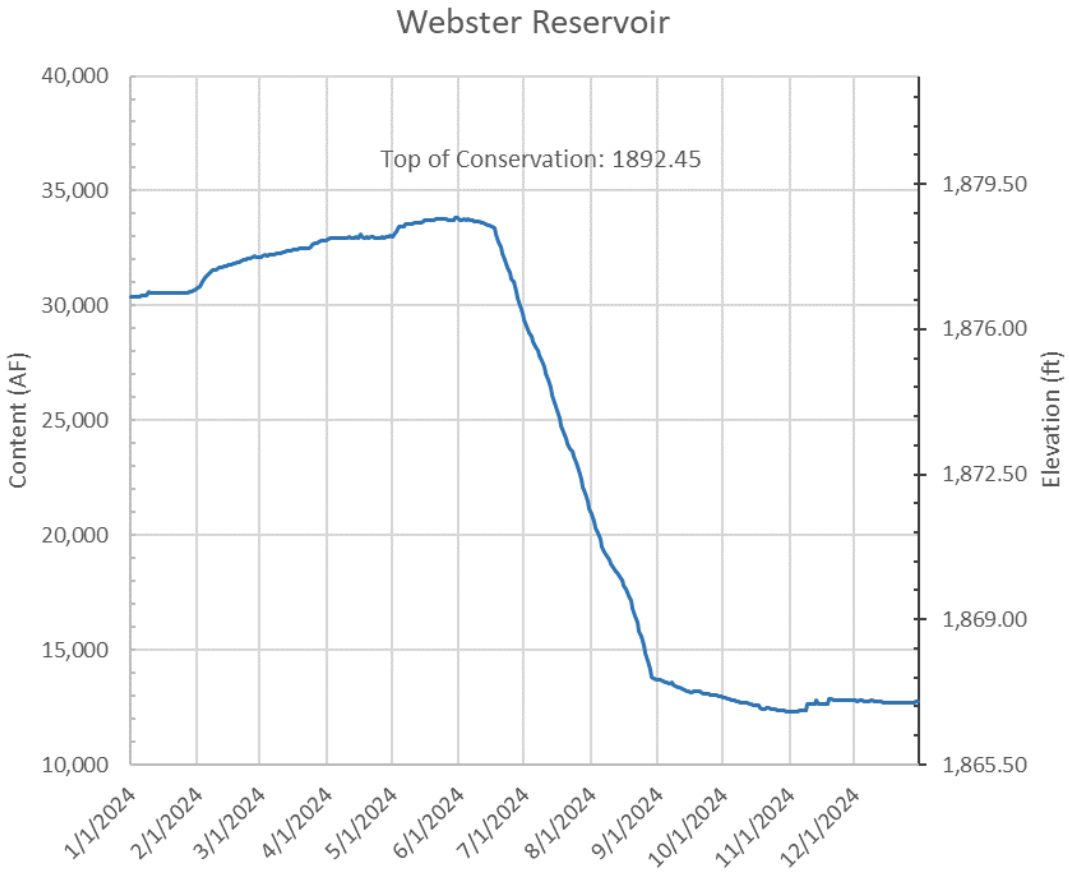

Figure 9.—Webster Reservoir elevation and content.

2025 Outlook

The carry-over storage and the flows in the South Fork Solomon River are expected to be inadequate in meeting the full dry-year irrigation requirement by 31,600 AF. Carry-over storage and natural flow are expected to be inadequate to irrigate all district lands under the normal-year forecast. Carry-over storage and natural flow are expected to be adequate to irrigate all district lands under the wet-year forecasts.

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 No. 2, the long-term water service contract with Glen Elder Irrigation District, and for water right administration.

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.

Renewal of the long-term water service contract with the City of Beloit, KS 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. In 2019 the city began investigating building a pipeline from the city treatment facility to Mitchell County Rural Water District's treatment facility.

The long-term water service contract with the Glen Elder Irrigation District was set 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 water service contract includes an upfront fee for a base 2,000 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 provides 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. Extensive repairs to the soil cement occurred in 2022 and 2023.

2024 Summary

The annual precipitation total of 19.88 inches at Glen Elder Dam was 78 percent of normal. The inflow of 57,181 AF was between the dry and average-year forecast. The lake level at the beginning of the year was 1,450.38 feet (5.2 feet below the top of conservation). A release of 15 ft^3/s was made throughout the spring for water quality bypass for the City of Beloit. Releases for the Glen Elder Irrigation District began May 12 and concluded September 18. The reservoir peaked at elevation 1,450.99 feet (4.6 feet below top of conservation) on March 14. Following the irrigation season a release of 12 ft^3/s, for the City of Beloit, continued throughout the fall and winter.

Waconda Lake ended the year at elevation 1,449.14 feet (6.5 feet above the top of conservation). Glen Elder Dam prevented $22,500 of downstream flood damages during 2023 according to the USACE.

Glen Elder Irrigation District irrigated 6,693 acres with natural flow releases of 12,063 AF. Approximately 1,557 AF was released from the district's storage account. The district delivered 5,471 AF to the farms (delivery efficiency of 40 percent). No storage releases were necessary for the City of Beloit. Releases to the Mitchell County Rural Water District No. 2 totaled 365 AF. A daily plot of the reservoir elevation is shown in figure 10.

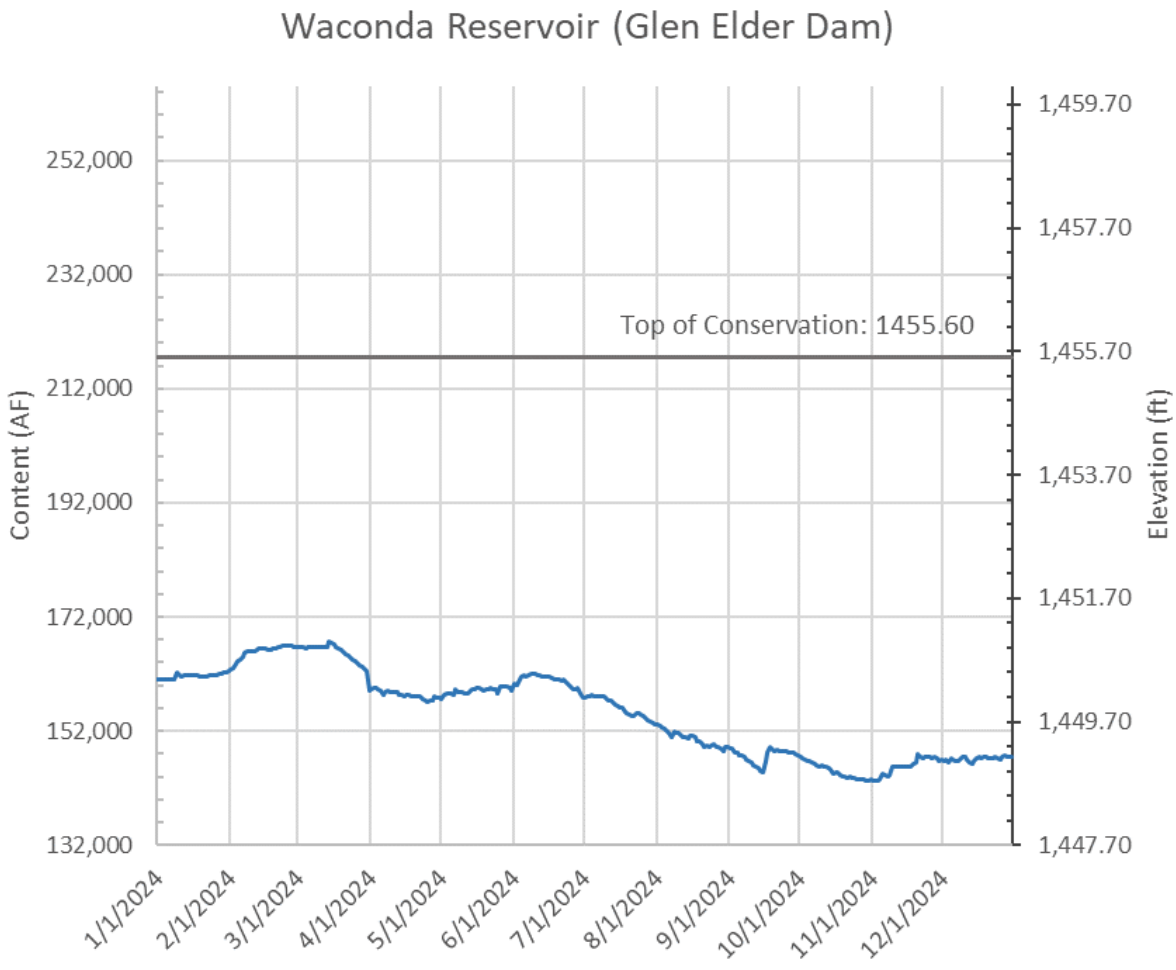

Figure 10.—Waconda Lake elevation and content.

2025 Outlook

The municipal requirement of Beloit and the requirements of the Mitchell County Rural Water District No. 2 will be met in full, making 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 supply 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 Kansas Department of Wildlife and Parks (KDWP) (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 KDWP 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 KDWP will be responsible for the joint pool releases and for the water rights.

2024 Summary

The annual precipitation total at Cedar Bluff Dam was 23.87 inches, 112 percent of normal. The 2024 inflow of 8,062 AF was between the dry-year and average-year forecast. The reservoir level at the beginning of the year was 2,124.62 feet (19.4 feet below the top of conservation). For most of the year, evaporation exceeded inflow, and the reservoir water elevation declined to a yearly low of 2,122.37 feet on November 2. The end of year elevation was 2,122.67 (21.3 feet below the top of conservation. A plot of Cedar Bluff Reservoir daily elevation and content is shown in figure 11.

Water was not released from the reservoir for the City of Russell or the Kansas Water Office in 2024. The State of Kansas operates and maintains the fish hatchery facility located below Cedar Bluff Dam. There were no releases to the facility in 2024.

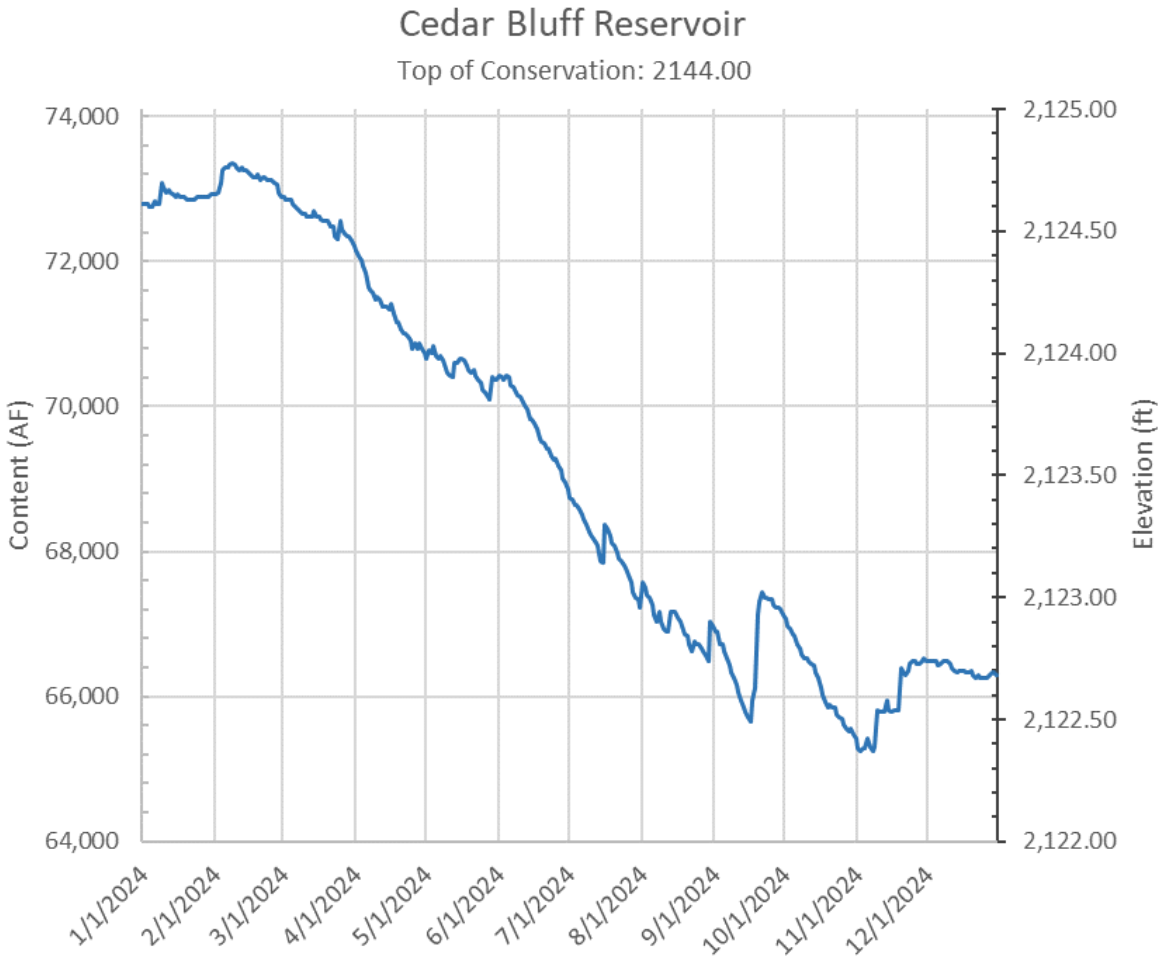

Figure 11.—Cedar Bluff Reservoir elevation and content.

2025 Outlook

Storage in Cedar Bluff Reservoir on December 31, 2024, was within the joint use pool. The KDWP is expected to use very little, if any, water for 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 2025.

Appendix A

Tables

Table A-1.—Reservoir Data – Niobrara, Lower Platte, and Kansas River Basins

Reservoir	Top of Dead Pool		Top of Inactive		Top of Conservation		Top of Flood Pool	
	Elevation	Capacity (AF)	Elevation	Capacity (AF)	Elevation	Capacity (AF)	Elevation	Capacity (AF)
Bonny	3,635.5	0	3,638.0	0	3,672.0	36,508	3,710.0	165,328
Swanson	2,710.0	1,027	2,720.0	10,329	2,752.0	110,175	2,773.0	244,362
Enders	3,080.0	7,516	3,082.4	8,948	3,112.3	42,910	3,127.0	72,958
Hugh Butler	2,552.0	5,185	2,558.0	8,921	2,581.8	36,224	2,604.9	85,070
Harry Strunk	2,335.0	3,408	2,343.0	7,897	2,366.1	34,647	2,386.2	87,361
Keith Sebelius	2,275.0	1,636	2,280.4	3,993	2,304.3	34,510	2,331.4	133,740
Harlan County	1,885.0	0	1,927.0	118,099	1,945.73	314,111	1,973.5	814,111
Lovewell	1,562.07	860	1,571.7	10,248	1,582.6	34,888	1,595.3	85,527
Kirwin	1,693.0	4,969	1,697.0	8,515	1,729.25	98,154	1,757.3	313,290
Webster	1,855.5	1,256	1,860.0	4,231	1,892.45	76,157	1,923.7	259,510
Cedar Bluff	2,090.0	4,402	2,107.8	28,574	2,144.0	172,452	2,166.0	364,342
Waconda	1,407.8	248	1,428.0	26,237	1,455.6	219,420	1,488.3	942,408
Box Butte	3,969.0	188	3,979.0	2,392	4,007.0	29,161	No flood pool	
Merritt	2,875.0	774	2,896.0	4,662	2,946.0	66,726	No flood pool	
Calamus	2,185.0	35	2,213.3	20,150	2,244.0	119,469	No flood pool	
Davis Creek	1,998.5	76	2,003.0	172	2,076.0	31,158	No flood pool	

Table A-2.—Summary of precipitation, reservoir storage and inflows, calendar year 2024

Reservoir	Total Precip. (inches)	Percent Of Average	Storage 12-31-23	Storage 12-31-24	Gain or Loss (AF)	Maximum Content (AF)	Date	Minimum Content (AF)	Date	Total Inflow (AF)	Percent Of Most Probable
Box Butte	12.30	71	12,786	10,409	-2,377	20,905	3-Jun	7,169	5-Sep	13,565	85
Merritt	16.09	75	61,451	61,262	-189	66,668	21-Jun	33,853	13-Sep	195,582	101
Calamus	21.05	83	100,936	99,084	-1,852	121,766	21-May	55,396	16-Oct	281,347	103
Davis Creek	29.31	112	13,661	13,765	104	31,616	9-Jul	12,570	15-Apr	55,942	115
Bonny	20.84	118	0	0	0	0	#N/A	0	#N/A	1,692	38
Enders	19.7	102	7,948	7,884	-64	8,891	24-May	7,437	17-Oct	3,664	75
Swanson	20.32	100	55,612	51,020	-4,592	70,882	8-Jun	49,110	6-Nov	25,249	95
Hugh Butler	23.97	120	16,306	13,607	-2,699	18,898	5-Jun	12,779	18-Oct	7,845	78
Harry Strunk	25.44	120	27,835	29,362	1,527	35,783	5-Jun	22,581	6-Sep	32,505	80
Keith Sebelius	28.61	114	17,260	14,685	-2,575	19,361	5-Jun	14,360	2-Nov	5,616	85
Harlan County	24.87	106	219,693	215,465	-4,228	279,882	20-Jun	209,285	1-Nov	104,720	95
Lovewell	21.54	77	27,797	24,409	-3,388	42,704	7-Jun	14,123	30-Aug	48,571	99
Kirwin	26.79	112	58,237	44,817	-13,420	65,160	5-Jun	43,912	1-Nov	15,942	53
Webster	21.48	90	30,064	12,608	-17,456	34,340	30-May	12,290	1-Nov	9,086	47
Waconda	19.88	78	160,397	148,467	-11,930	166,562	14-Mar	144,790	30-Oct	57,181	40
Cedar Bluff	23.87	112	72,874	66,233	-6,641	73,437	8-Feb	65,247	2-Nov	8,062	71

Table A-3.—Acreage irrigated in 2024, and projections for 2025

Irrigation District and Canal	Acres With Service Available	Acres Irrigated in 2024	Estimated Acres to be Irrigated in 2025
Mirage Flats Irrigation District			
Mirage Flats Canal	11,662	10,756	10,500
Ainsworth Irrigation District			
Ainsworth Canal	35,000	34,640	34,600
Twin Loups Irrigation District			
Above Davis Creek	34,688	34,688	34,700
Below Davis Creek	21,422	21,422	21,400
Total Twin Loups Irrigation District	56,110	56,110	56,100
Frenchman Valley Irrigation District			
Culbertson Canal	9,292	0	0
Frenchman-Cambridge Irrigation District			
Meeker-Driftwood Canal	16,691	6,750	16,000
Red Willow Canal	4,643	1,600	0
Bartley Canal	6,130	3,064	2,800
Cambridge Canal	18,205	13,750	13,500
Total Frenchman-Cambridge Irrigation District	45,669	25,164	32,300
Almena Irrigation District			
Almena Canal	5,764	5,763	4,000
Bostwick Irrigation District in Nebraska			
Franklin Canal	11,031	10,277	10,300
Naponee Canal	1,607	824	800
Franklin Pump Canal	2,026	1,431	1,400
Superior Canal	6,056	5,788	5,800
Courtland Canal (Nebraska)	1,735	1,368	1,400
Total Bostwick Irrigation District in Nebraska	22,455	19,688	19,700
Kansas-Bostwick Irrigation District			
Courtland Canal above Lovewell	13,378	12,401	12,000
Courtland Canal below Lovewell	29,122	27,882	28,000
Total Kansas-Bostwick Irrigation District	42,500	40,283	40,000
Kirwin Irrigation District			
Kirwin Canal	11,465	9,397	9,000
Webster Irrigation District			
Osborne Canal	8,537	5,612	0
Glen Elder Irrigation District	10,370	6,693	6,500
Total project uses	**258,824**	**214,106**	**212,700**

Table A-4.—Water diverted in 2024, and estimated diversions in 2025

Irrigation District and Canal	Start Date	End Date	10-Year Average Diversion (AF)	2024 Diversions (AF)	Estimated Diversion in 2025 (AF)
Mirage Flats Irrigation District					
Mirage Flats Canal	7/6	9/6	12,826	12,813	10,000
Ainsworth Irrigation District					
Ainsworth Canal	5/19	9/23	67,778	81,631	65,000
Twin Loups Irrigation District					
Above Davis Creek	3/21	9/16	41,790	50,219	4,200
Below Davis Creek	5/6	9/16	44,936	44,769	48,000
Total Twin Loups Irrigation District			86,726	94,988	52,200
Frenchman Valley Irrigation District					
Culbertson Canal	N/A	N/A	5,200	0	0
Frenchman-Cambridge Irrigation District					
Meeker-Driftwood Canal	6/24	9/3	14,825	14,686	18,000
Red Willow Canal	6/25	8/30	2,161	4,251	0
Bartley Canal	4/29	8/31	7,264	6,863	3,000
Cambridge Canal	4/26	9/7	24,439	23,195	22,000
Total Frenchman-Cambridge Irrigation District			48,689	48,995	43,000
Almena Irrigation District					
Almena Canal	7/17	7/31	1,028	2,343	2,000
Bostwick Irrigation District in Nebraska					
Franklin Canal	6/24	9/10	18,217	19,075	18,000
Naponee Canal	6/28	9/10	1,119	1,038	1,000
Franklin Pump Canal	7/9	9/10	964	1,550	1,000
Superior Canal	6/13	9/6	7,739	9,450	8,000
Courtland Canal (Nebraska)	6/24	9/11	654	1,715	800
Total Bostwick Irrigation District in Nebraska			28,693	32,828	28,800
Kansas-Bostwick Irrigation District					
Courtland Canal above Lovewell	1/29	12/31	18,490	20,830	20,000
Courtland Canal below Lovewell	5/30	9/16	31,931	42,039	36,000
Total Kansas-Bostwick Irrigation District			50,421	62,869	56,000
Kirwin Irrigation District					
Kirwin Canal	6/24	8/30	16,865	16,455	16,000
Webster Irrigation District					
Osborne Canal	6/19	8/31	7,891	12,541	0
Glen Elder Irrigation District	6/13	9/18	5,959	13,620	5,000
Total project diversions			**332,075**	**379,083**	**278,000**

Table A-5.—Summary of 2024 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.	1,455	83	92	0.40	14,066	0	0
Feb.	2,210	77	124	0.79	16,075	0	0
Mar.	1,962	123	233	0.60	17,681	0	0
Apr.	2,795	99	402	3.22	19,975	0	0
May	1,525	149	500	1.19	20,851	0	0
June	668	234	634	2.81	20,651	0	0
July	-730	6,199	638	1.25	13,084	5,808	2,066
Aug.	327	5,869	467	1.02	9,081	5,874	3,145
Sept.	212	1,182	273	0.11	7,838	1,131	748
Oct.	798	60	192	0.06	8,384	0	0
Nov.	1,103	63	112	0.65	9,312	0	0
Dec.	1,240	73	70	0.20	10,409	0	0
Total	13,565	14,211	3,737	12.30		12,813	5,959

Note: Acres irrigated in 2024: Mirage Flats Canal - 10,756 acres.

Table A-6.—Summary of 2024 Operations – Sandhills Division, Ainsworth Unit

	Merritt Reservoir					Ainsworth Canal	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (inches)	End of Month Content (AF)	Diverted to Canal (AF)	Delivered to Farms (AF)
Jan.	16,226	15,471	238	0.00	61,968	0	0
Feb.	18,773	19,042	302	1.41	61,397	0	0
Mar.	16,231	15,868	417	0.57	61,343	0	0
Apr.	18,109	13,339	716	3.57	65,397	0	0
May	16,383	15,035	1,090	3.16	65,655	1,717	4
June	15,608	14,123	1,341	4.95	65,799	6,990	421
July	15,898	27,323	1,426	0.57	52,948	26,866	15,202
Aug.	17,030	30,288	1,004	0.67	38,686	30,577	20,606
Sept.	15,913	15,184	799	0.16	38,616	15,481	8,870
Oct.	12,337	1,488	554	0.05	48,911	0	0
Nov.	18,071	5,673	397	0.98	60,912	0	0
Dec.	15,003	14,341	312	0.00	61,262	0	0
Total	195,582	187,175	8,596	16.09		81,631	45,103

Note: Acres irrigated 2024: Ainsworth Canal - 34,640 acres.

Table A-7.—Summary of 2024 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.	21,965	20,281	435	0.17	102,185	0	0	0	0
Feb.	24,920	17,742	558	0.21	108,805	0	0	0	0
Mar.	21,869	8,622	1,055	1.92	120,997	53	0	0	0
Apr.	26,676	25,151	1,780	3.46	120,742	311	7,163	0	0
May	27,390	25,050	2,901	3.21	120,181	60	15,451	1,706	20
June	28,074	26,240	2,343	4.79	119,672	251	15,554	2,662	279
July	26,116	41,579	3,095	4.16	101,114	307	24,232	7,566	4,633
Aug	23,437	52,426	1,922	1.40	70,203	427	36,270	16,649	12,123
Sept.	18,639	29,915	1,367	0.00	57,560	261	15,025	8,865	7,282
Oct.	20,729	12,908	931	0.92	64,450	23	0	0	0
Nov.	19,830	159	569	0.61	83,552	0	0	0	0
Dec.	21,702	5,796	374	0.20	99,084	0	0	0	0
Total	281,347	265,869	17,330	21.05		1,693	113,695	37,448	24,337

Note: Acres irrigated 2024: Mirdan Canal 34,688 acres.

Table A-8.—Summary of 2024 Operations – North Loup Division (continued)

	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.	201	413	62	0.50	13,387	0	0
Feb.	179	373	76	0.48	13,117	0	0
Mar.	180	375	133	1.32	12,789	0	0
Apr.	5,689	415	242	3.98	17,821	0	0
May	16,331	4,703	351	8.78	29,098	3,474	0
June	8,967	6,280	559	4.60	31,226	4,687	82
July	10,086	10,800	458	2.87	30,054	9,304	3,458
Aug.	9,371	17,248	359	2.30	21,818	16,618	8,700
Sept.	4,197	10,952	320	0.49	14,743	10,686	4,832
Oct.	187	492	190	0.25	14,248	0	0
Nov.	365	442	101	3.38	14,070	0	0
Dec.	189	436	58	0.36	13,765	0	0
Total	55,942	52,929	2,909	29.31		44,769	17,072

Note: Acres irrigated 2024: Fullerton Canal 21,422 acres.

Table A-9.—Summary of 2024 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.	135	135	0	0.08	0	0
Feb.	186	186	0	1.98	0	0
Mar.	186	186	0	0.30	0	0
Apr.	157	157	0	2.03	0	0
May	173	173	0	3.75	0	0
June	125	125	0	1.53	0	0
July	123	123	0	3.84	0	0
Aug.	123	123	0	1.92	0	0
Sept.	119	119	0	0.59	0	0
Oct.	123	123	0	1.22	0	0
Nov.	119	119	0	3.60	0	0
Dec.	123	123	0	0.00	0	0
Total	1,692	1,692	0	20.84	–	0

Table A-10.—Summary of 2024 Operations – Frenchman-Cambridge Division, Frenchman Unit

Enders Reservoir						Culbertson Canal	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (inches)	End of Month Content (AF)	Diverted to Canal (AF)	Delivered to Farms (AF)
Jan.	319	123	49	0.23	8,095	0	0
Feb.	402	115	48	0.67	8,334	0	0
Mar.	437	123	84	1.19	8,564	0	0
Apr.	511	119	238	2.45	8,718	0	0
May	562	123	291	2.76	8,866	0	0
June	105	119	319	1.54	8,533	0	0
July	141	123	367	2.46	8,184	0	0
Aug.	258	123	277	4.53	8,042	0	0
Sept.	27	119	263	0.52	7,687	0	0
Oct.	169	123	189	1.38	7,544	0	0
Nov.	413	119	94	1.95	7,744	0	0
Dec.	320	123	57	0.02	7,884	0	0
Total	3,664*	1,452	2,276	19.70		0	0

Note: Acres irrigated 2024: Culbertson Canal - 0 acres.

* Approximately 1,497 AF was recovered by the pump-back system.

Table A-11.—Summary of 2024 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.	2,641	61	278	0.31	57,914	0	0
Feb.	4,593	58	283	0.93	62,166	0	0
Mar.	4,025	61	529	0.98	65,601	0	0
Apr.	3,613	60	1,139	2.25	68,015	0	0
May	4,010	61	1,878	5.67	70,086	0	0
June	1,753	1,650	1,724	2.22	68,465	1,465	86
July	689	7,934	1,999	1.73	59,221	7,369	2,669
Aug.	1,208	6,165	1,266	3.38	52,998	5,324	3,232
Sept.	0	756	1,638	0.45	50,604	528	311
Oct.	0	61	1,275	0.15	49,268	0	0
Nov.	875	60	530	2.25	49,553	0	0
Dec.	1,842	61	314	0.00	51,020	0	0
Total	25,249	16,988	12,853	20.32		14,686	6,298

Note: Acres irrigated 2024: Meeker-Driftwood Canal - 6,750 acres.

Table A-12.—Summary of 2024 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)	Diverted to Canal (AF)	Delivered to Farms (AF)	Diverted to Canal (AF)	Delivered to Farms (AF)
Jan.	562	123	76	0.36	16,669	0	0	0	0
Feb.	674	115	78	1.07	17,150	0	0	0	0
Mar.	649	123	140	1.08	17,536	0	0	0	0
Apr.	860	119	362	2.40	17,915	0	0	168	2
May	1,408	123	477	5.82	18,723	0	0	2,069	0
June	471	659	577	2.30	17,958	344	30	1,637	253
July	535	2,938	526	3.43	15,029	2,445	518	1,397	667
Aug.	946	2,386	377	4.79	13,212	1,462	632	1,592	1,034
Sept.	233	115	375	0.70	12,955	0	0	0	0
Oct.	273	123	265	0.22	12,840	0	0	0	0
Nov.	668	119	142	1.80	13,247	0	0	0	0
Dec.	566	123	83	0.00	13,607	0	0	0	0
Total	7,845	7,066	3,478	23.97		4,251	1,180	6,863	1,956

Note: Acres irrigated 2024: Red Willow Canal - 1,600 acres; Bartley Canal 3,064 acres.

Table A-13.—Summary of 2024 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)	Diverted to Canal (AF)	Delivered to Farms (AF)
Jan.	2,603	61	118	0.64	30,259	0	0
Feb.	2,949	58	122	0.83	33,028	0	0
Mar.	2,692	559	256	1.11	34,905	0	0
Apr.	3,276	3,433	558	3.24	34,190	499	0
May	3,842	1,775	793	4.20	35,464	4,086	12
June	2,359	2,938	949	1.86	33,936	4,381	1,454
July	2,806	7,393	823	5.00	28,526	7,042	4,099
Aug.	3,309	7,504	542	5.34	23,789	5,778	4,263
Sept.	1,748	1,579	549	0.49	23,409	1,409	984
Oct.	1,892	61	436	0.61	24,804	0	0
Nov.	2,603	60	219	2.11	27,128	0	0
Dec.	2,426	61	131	0.01	29,362	0	0
Total	32,505	25,482	5,496	25.44		23,195	10,812

Note: Acres irrigated 2024: Cambridge Canal 13,750 acres.

Table A-14.—Summary of 2024 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)	Diverted to Canal (AF)	Delivered to Farms (AF)
Jan.	418	50	102	0.52	17,526	19	0	0
Feb.	653	44	110	1.71	18,025	13	0	0
Mar.	701	48	205	2.06	18,473	18	0	0
Apr.	814	51	617	2.29	18,619	22	0	0
May	1,359	56	711	6.21	19,211	26	0	0
June	231	64	715	2.27	18,663	34	192	87
July	561	2,368	678	3.38	16,178	42	1,917	866
Aug.	180	241	508	2.85	15,609	41	156	70
Sept.	0	65	644	1.35	14,900	35	78	35
Oct.	0	64	439	1.97	14,397	33	0	0
Nov.	476	47	204	4.00	14,622	17	0	0
Dec.	223	48	112	0.00	14,685	17	0	0
Total	5,616	3,146	5,045	28.61		317	2,343	1,058

Note: Acres irrigated 2024: Almena Canal 5,763 acres.

Table A-15.—Summary of 2024 Operations – Bostwick Division, Franklin Unit

Harlan County Lake (USACE)						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.	4,776	0	556	0.39	223,913	0	0	0	0
Feb.	9,975	0	790	1.34	233,098	0	0	0	0
Mar.	9,301	0	1,145	1.17	241,254	0	0	0	0
Apr.	14,384	0	3,005	2.46	252,633	0	0	0	0
May	19,950	0	3,496	5.95	269,087	0	0	0	0
June	15,826	5,584	5,285	3.84	274,044	1,782	456	18	0
July	9,197	24,593	6,967	1.90	251,681	8,975	2,026	428	194
Aug.	7,089	24,615	6,239	3.32	227,916	6,284	2,544	391	262
Sept.	801	10,179	5,675	0.37	212,863	2,034	1,396	201	134
Oct.	3,993	0	7,246	0.70	209,610	0	0	0	0
Nov.	5,687	0	2,434	3.43	212,863	0	0	0	0
Dec.	3,741	0	1,139	0.00	215,465	0	0	0	0
Total	104,720	64,971	43,977	24.87		19,075	6,422	1,038	590

Note: Acres irrigated 2024: Franklin Canal - 10,277 acres; Naponee Canal - 824 acres.

Table A-16.—Summary of 2024 Operations – Bostwick Division, Superior-Courtland Unit

Franklin Pump Canal			Superior Canal		Courtland Canal - Above Lovewell				
						Nebraska Use		Kansas Use	
Month	Diverted to Canal (AF)	Delivered to Farms (AF)	Diverted to Canal (AF)	Delivered to Farms (AF)	Total Diversion (AF)	Total Use (AF)	Delivered to Farms (AF)	Diverted to Canal (AF)	Delivered to Farms (AF)
Jan.	0	0	0	0	740	0	0	0	0
Feb.	0	0	0	0	5,354	0	0	0	0
Mar.	0	0	0	0	0	0	0	0	0
Apr.	0	0	0	0	0	0	0	0	0
May	0	0	0	0	6,369	0	0	0	0
June	30	1	1,872	463	6,163	77	61	3,872	1,095
July	572	378	3,528	872	14,266	635	540	7,242	4,458
Aug.	707	702	3,618	894	14,978	739	635	8,277	5,427
Sept.	241	190	432	107	10,970	264	248	1,439	819
Oct.	0	0	0	0	3,504	0	0	0	0
Nov.	0	0	0	0	5,489	0	0	0	0
Dec.	0	0	0	0	5,228	0	0	0	0
Total	1,550	1,271	9,450	2,336	73,061	1,715	1,484	20,830	11,799

Note: Acres irrigated 2024: Courtland Canal-Nebraska - 1,368 acres; Kansas 12,401 acres.
Franklin Pump Canal - 1,431 acres; Superior 5,788 acres.

Table A-17.—Summary of 2024 Operations – Bostwick Division, Courtland Unit

	Lovewell Reservoir							Courtland	
Month	Est. Flow from White Rock Creek (FB)	Inflow from Courtland 34.8 (AF)	Total Inflow (AF)	Outflow (FB)	Gross Evap. (AF)	Precip. (inches)	End of Month Content (AF)	Release to Canal (AF)	Delivered to Farms (AF)
Jan.	567	60	627	12	171	0.59	28,241	0	0
Feb.	1,476	4,525	6,001	12	202	0.76	34,028	0	0
Mar.	362	0	362	12	379	0.84	33,470	0	0
Apr.	1,169	0	1,169	12	1,069	1.18	33,558	0	0
May	2,678	4,896	7,574	80	1,322	4.87	39,730	264	0
June	3,138	1,246	4,384	5,588	1,463	4.05	37,063	5,579	2,145
July	0	5,196	4,793	14,460	1,402	2.17	25,994	14,545	11,236
Aug.	733	4,835	5,568	17,160	996	1.99	13,406	16,551	12,197
Sept.	0	8,502	8,150	5,147	750	0.64	15,659	5,100	3,233
Oct.	0	2,442	2,053	12	643	0.71	17,057	0	0
Nov.	216	4,096	4,312	12	328	3.39	21,029	0	0
Dec.	187	3,391	3,578	12	186	0.35	24,409	0	0
Total	10,526	39,189	48,571	42,519	8,911	21.54		42,039	28,811

Note: Acres irrigated 2024: Courtland Canal below Lovewell 27,882 acres.

Table A-18.— Summary of 2024 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.	949	0	249	1.11	58,937	0	0
Feb.	1,990	0	311	1.11	60,616	0	0
Mar.	1,436	0	529	1.71	61,523	0	0
Apr.	1,547	0	1,547	0.93	61,523	0	0
May	3,449	0	1,607	6.58	63,365	0	0
June	2,523	1,055	1,855	2.57	62,978	1,198	161
July	1,247	8,315	2,005	2.20	53,905	8,379	3,566
Aug.	978	7,020	1,172	5.31	46,691	6,878	3,641
Sept.	194	0	1,383	1.68	45,502	0	0
Oct.	0	0	1,526	0.22	43,976	0	0
Nov.	1,193	0	515	3.33	44,654	0	0
Dec.	436	0	273	0.04	44,817	0	0
Total	15,942	16,390	12,972	26.79		16,455	7,368

Note: Acres irrigated 2024: Kirwin Canal - 9,397 acres.

Table A-19.—Summary of 2024 Operations – Solomon Division, Webster Unit

	Webster Reservoir					Osborne Canal	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (inches)	End of Month Content (AF)	Diverted to Canal (AF)	Delivered to Farms (AF)
Jan.	551	0	159	1.02	30,456	0	0
Feb.	1,933	0	182	1.62	32,207	0	0
Mar.	1,242	0	334	1.10	33,115	0	0
Apr.	1,156	0	927	0.39	33,344	0	0
May	1,964	0	1,061	3.84	34,247	0	0
June	125	3,884	1,284	2.27	29,204	2,143	481
July	543	8,612	1,052	2.74	20,083	5,741	3,162
Aug.	917	6,839	718	3.60	13,443	4,657	2,719
Sept.	0	0	618	0.86	12,825	0	0
Oct.	0	0	506	0.33	12,319	0	0
Nov	597	0	236	3.71	12,680	0	0
Dec.	58	0	130	0.00	12,608	0	0
Total	9,086	19,335	7,207	21.48		12,541	6,362

Note: Acres irrigated 2024: Osborne Canal - 5,612 acres.

Table A-20.—Summary of 2024 Operations – Solomon Division, Glen Elder Unit

	Waconda Lake					Outflow To River				
						City of Beloit				
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (inches)	End of Month Content (AF)	Storage Release (AF)	Quality Bypass (AF)	Irrig. District Storage Release (AF)	Other Controlled Releases (AF)	Release to Mitchell Co. RWD No. 2 (AF)
Jan.	3,082	949	635	1.06	161,895	0	922	0	0	28
Feb.	5,485	888	750	0.11	165,742	0	863	0	0	26
Mar.	3,321	950	1,388	0.96	158,714	0	922	0	0	28
Apr.	4,508	1,161	4,624	0.80	157,437	0	714	0	415	32
May	7,446	955	4,819	3.26	159,109	0	924	0	0	31
June	6,139	2,287	5,524	2.15	157,437	0	357	143	1,753	34
July	6,901	5,128	5,933	1.74	153,277	0	0	823	4,267	38
Aug.	6,437	4,832	5,109	2.71	149,773	0	0	371	4,428	33
Sept.	5,601	2,103	4,711	2.96	148,560	0	262	220	1,588	33
Oct.	1,176	771	3,903	0.53	145,062	0	738	0	0	33
Nov.	5,034	739	1,447	3.60	147,910	0	714	0	0	25
Dec.	2,051	763	731	0.00	148,467	0	738	0	1	24
Total	57,181	21,526	39,574	19.88		0	7,154	1,557	12,453	365

Note: Acres irrigated 2024: Glen Elder District 6,693 acres.

Table A-21.—Summary of 2024 Operations – Smoky Hill Division, Cedar Bluff Unit

Cedar Bluff Reservoir						Release to:		
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (inches)	End of Month Content (AF)	City of Russell (AF)	Fish Hatchery (AF)	Kansas Water Office (AF)
Jan.	401	0	295	0.64	72,980	0	0	0
Feb.	284	0	320	1.01	72,944	0	0	0
Mar.	0	0	700	0.72	72,244	0	0	0
Apr.	0	0	1,525	0.25	70,719	0	0	0
May	1,293	0	1,603	3.21	70,409	0	0	0
June	0	0	1,602	2.70	68,807	0	0	0
July	1,139	0	2,751	2.42	67,195	0	0	0
Aug.	1,530	0	1,796	6.68	66,929	0	0	0
Sept.	1,705	0	1,539	1.88	67,095	0	0	0
Oct.	0	0	1,684	0.13	65,411	0	0	0
Nov.	1,619	0	566	4.23	66,464	0	0	0
Dec.	91	0	322	0.00	66,233	0	0	0
Total	8,062	0	14,703	23.87		0	0	0

Table A-22.—Box Butte Reservoir operation estimates – 2025

Box Butte Reservoir Operation Estimates - 2025											
	Inflow		Evap.		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	End of Month Cont.	Reservoir Change
Month	ft^3/s	KAF	IN.	KAF	ft^3/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	15	0.9	1.6	0.1	2	0.1	0.0	0.0	3,995.1	13.5	0.7
Feb.	20	1.1	1.9	0.1	2	0.1	0.0	0.0	3,996.0	14.4	0.9
Mar.	24	1.5	3.8	0.2	2	0.1	0.0	0.0	3,997.1	15.6	1.2
Apr.	22	1.3	5.3	0.4	2	0.1	0.0	0.0	3,997.7	16.4	0.8
May	16	1.0	6.6	0.5	2	0.1	0.0	0.0	3,998.1	16.8	0.4
June	10	0.6	8.8	0.6	89	5.3	0.0	0.0	3,993.2	11.5	-5.3
July	6	0.4	10.1	0.6	226	13.9	0.0	5.0	3,979.0	2.4	-9.1
Aug.	11	0.7	8.8	0.2	213	13.1	0.0	12.6	3,979.0	2.4	0.0
Sept.	12	0.7	6.6	0.1	40	2.4	0.0	1.8	3,979.0	2.4	0.0
Oct.	15	0.9	5.0	0.1	2	0.1	0.0	0.0	3,980.9	3.1	0.7
Nov.	18	1.1	2.5	0.1	2	0.1	0.0	0.0	3,982.5	4.0	0.9
Dec.	15	0.9	1.9	0.1	2	0.1	0.0	0.0	3,983.9	4.7	0.7
Total		**11.1**	**62.9**	**3.1**		**35.5**	**0.0**	**19.4**			**-8.1**
Most Probable Inflow Conditions											
Jan.	21	1.3	1.5	0.1	2	0.1	0.0	0.0	3,995.5	13.9	1.1
Feb.	27	1.5	1.7	0.1	2	0.1	0.0	0.0	3,996.7	15.2	1.3
Mar.	36	2.2	3.5	0.2	2	0.1	0.0	0.0	3,998.3	17.1	1.9
Apr.	32	1.9	5.0	0.4	2	0.1	0.0	0.0	3,999.5	18.5	1.4
May	24	1.5	6.1	0.4	2	0.1	0.0	0.0	4,000.2	19.5	1.0
June	13	0.8	8.2	0.6	70	4.2	0.0	0.0	3,997.0	15.5	-4.0
July	10	0.6	9.3	0.6	209	12.9	0.0	0.0	3,979.5	2.6	-12.9
Aug.	16	1.0	8.2	0.2	164	10.1	0.0	9.1	3,979.0	2.4	-0.2
Sept.	17	1.0	6.1	0.1	29	1.7	0.0	0.8	3,979.0	2.4	0.0
Oct.	21	1.3	4.7	0.1	2	0.1	0.0	0.0	3,981.5	3.5	1.1
Nov.	27	1.6	2.3	0.1	2	0.1	0.0	0.0	3,984.2	4.9	1.4
Dec.	21	1.3	1.7	0.1	2	0.1	0.0	0.0	3,986.1	6.0	1.1
Total		**16.0**	**58.3**	**3.0**		**29.7**	**0.0**	**9.9**			**-6.8**
Reasonable Maximum Inflow Conditions											
Jan.	31	1.9	1.3	0.1	2	0.1	0.0	0.0	3,996.1	14.5	1.7
Feb.	40	2.2	1.6	0.1	2	0.1	0.0	0.0	3,997.8	16.5	2.0
Mar.	52	3.2	3.2	0.2	2	0.1	0.0	0.0	4,000.2	19.4	2.9
Apr.	45	2.7	4.6	0.3	2	0.1	0.0	0.0	4,001.9	21.7	2.3
May	36	2.2	5.6	0.4	2	0.1	0.0	0.0	4,003.1	23.4	1.7
June	20	1.2	7.5	0.6	47	2.8	0.0	0.0	4,001.5	21.2	-2.2
July	15	0.9	8.6	0.7	135	8.3	0.0	0.0	3,994.8	13.1	-8.1
Aug.	24	1.5	7.5	0.5	104	6.4	0.0	0.0	3,988.6	7.7	-5.4
Sept.	25	1.5	5.6	0.2	18	1.1	0.0	0.0	3,988.9	7.9	0.2
Oct.	31	1.9	4.3	0.2	2	0.1	0.0	0.0	3,990.9	9.5	1.6
Nov.	39	2.3	2.1	0.1	2	0.1	0.0	0.0	3,993.2	11.6	2.1
Dec.	31	1.9	1.6	0.1	2	0.1	0.0	0.0	3,995.0	13.3	1.7
Total		**23.4**	**53.5**	**3.5**		**19.4**	**0.0**	**0.0**			**0.5**

Table A-23.—Merritt Reservoir operation estimates – 2025

Merritt Reservoir Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	Cont.	Reservoir Change
Month	ft³/s	KAF	in.	KAF	ft³/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	227	14.0	1.9	0.3	16	1.0	12.9	0.0	2,944.0	61.1	-0.2
Feb.	248	13.8	2.6	0.4	18	1.0	12.4	0.0	2,944.0	61.1	0.0
Mar.	256	15.8	3.2	0.5	16	1.0	11.5	0.0	2,945.0	63.9	2.8
Apr.	262	15.6	5.2	0.9	17	1.0	10.9	0.0	2,946.0	66.7	2.8
May	253	15.6	6.4	1.1	71	4.4	10.1	0.0	2,946.0	66.7	0.0
June	240	14.3	8.4	1.4	144	8.6	4.3	0.0	2,946.0	66.7	0.0
July	242	14.9	9.7	1.6	558	34.4	0.0	0.0	2,937.1	45.6	-21.1
Aug.	247	15.2	8.4	1.0	519	32.0	0.0	0.0	2,926.2	27.8	-17.8
Sept.	243	14.5	7.1	0.5	159	9.5	0.0	0.0	2,929.4	32.3	4.5
Oct.	247	15.2	6.4	0.5	41	2.5	0.0	0.0	2,936.6	44.5	12.2
Nov.	240	14.3	3.2	0.4	67	4.0	0.0	0.0	2,941.3	54.4	9.9
Dec.	224	13.8	1.9	0.3	16	1.0	5.8	0.0	2,944.0	61.1	6.7
Total		**177.0**	**64.4**	**8.9**		**100.4**	**67.9**	**0.0**			**-0.2**
Most Probable Inflow Conditions											
Jan.	252	15.5	1.7	0.3	16	1.0	14.4	0.0	2,944.0	61.1	-0.2
Feb.	275	15.3	2.3	0.4	18	1.0	13.9	0.0	2,944.0	61.1	0.0
Mar.	284	17.5	2.8	0.4	16	1.0	13.3	0.0	2,945.0	63.9	2.8
Apr.	290	17.3	4.6	0.8	17	1.0	12.7	0.0	2,946.0	66.7	2.8
May	281	17.3	5.7	1.0	63	3.9	12.4	0.0	2,946.0	66.7	0.0
June	267	15.9	7.4	1.3	126	7.5	7.1	0.0	2,946.0	66.7	0.0
July	268	16.5	8.5	1.4	479	29.5	0.0	0.0	2,940.4	52.3	-14.4
Aug.	274	16.9	7.4	1.0	448	27.6	0.0	0.0	2,934.5	40.6	-11.7
Sept.	270	16.1	6.3	0.7	139	8.3	0.0	0.0	2,938.2	47.7	7.1
Oct.	274	16.9	5.7	0.7	41	2.5	0.3	0.0	2,944.0	61.1	13.4
Nov.	267	15.9	2.8	0.4	67	4.0	11.5	0.0	2,944.0	61.1	0.0
Dec.	248	15.3	1.7	0.3	16	1.0	14.0	0.0	2,944.0	61.1	0.0
Total		**196.4**	**56.9**	**8.7**		**88.3**	**99.6**	**0.0**			**-0.2**
Reasonable Maximum Inflow Conditions											
Jan.	289	17.8	1.5	0.2	16	1.0	16.8	0.0	2,944.0	61.1	-0.2
Feb.	315	17.5	2.0	0.3	18	1.0	16.2	0.0	2,944.0	61.1	0.0
Mar.	325	20.0	2.5	0.4	16	1.0	15.8	0.0	2,945.0	63.9	2.8
Apr.	332	19.8	4.0	0.7	17	1.0	15.3	0.0	2,946.0	66.7	2.8
May	321	19.8	5.1	0.9	55	3.4	15.5	0.0	2,946.0	66.7	0.0
June	305	18.2	6.6	1.1	106	6.3	10.8	0.0	2,946.0	66.7	0.0
July	307	18.9	7.6	1.3	394	24.3	0.0	0.0	2,943.5	60.0	-6.7
Aug.	313	19.3	6.6	1.0	370	22.8	0.0	0.0	2,941.7	55.5	-4.5
Sept.	309	18.4	5.6	0.8	116	6.9	0.0	0.0	2,945.8	66.2	10.7
Oct.	313	19.3	5.1	0.9	41	2.5	21.0	0.0	2,944.0	61.1	-5.1
Nov.	305	18.2	2.5	0.4	67	4.0	13.8	0.0	2,944.0	61.1	0.0
Dec.	284	17.5	1.5	0.2	16	1.0	16.3	0.0	2,944.0	61.1	0.0
Total		**224.7**	**50.6**	**8.2**		**75.2**	**141.5**	**0.0**			**-0.2**

Table A-24.—Calamus Reservoir operation estimates – 2025

Calamus Reservoir Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	End of Month Cont.	Reservoir Change
Month	ft^3/s	KAF	in.	KAF	ft^3/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	297	18.3	1.9	0.5	58	3.6	12.7	0.0	2,240.0	100.5	1.5
Feb.	316	17.6	2.3	0.6	59	3.3	13.7	0.0	2,240.0	100.5	0.0
Mar.	352	21.7	4.2	1.1	58	3.6	7.8	0.0	2,242.0	109.7	9.2
Apr.	364	21.7	6.7	1.9	59	3.5	6.5	0.0	2,244.0	119.5	9.8
May	404	24.9	6.9	2.0	94	5.8	17.1	0.0	2,244.0	119.5	0.0
June	369	22.0	8.4	2.5	144	8.6	10.9	0.0	2,244.0	119.5	0.0
July	344	21.2	9.6	2.8	958	59.0	0.0	0.0	2,234.7	78.9	-40.6
Aug.	325	20.0	9.6	2.2	818	50.4	0.0	0.0	2,224.9	46.3	-32.6
Sept.	307	18.3	7.4	1.2	473	28.2	0.0	0.0	2,220.6	35.2	-11.1
Oct.	305	18.8	5.7	0.8	58	3.6	0.0	0.0	2,226.0	49.6	14.4
Nov.	332	19.8	3.0	0.5	59	3.5	0.0	0.0	2,231.0	65.4	15.8
Dec.	321	19.8	1.8	0.4	58	3.6	0.0	0.0	2,235.3	81.2	15.8
Total		**244.1**	**67.5**	**16.5**		**176.7**	**68.7**	**0.0**			**-17.8**
Most Probable Inflow Conditions											
Jan.	356	19.8	2.0	0.5	54	3.3	16.0	0.0	2,240.0	100.5	0.0
Feb.	396	24.4	3.7	1.0	58	3.6	10.6	0.0	2,242.0	109.7	9.2
Mar.	409	24.4	5.9	1.6	57	3.5	9.5	0.0	2,244.0	119.5	9.8
Apr.	455	28.0	6.2	1.8	88	5.4	20.8	0.0	2,244.0	119.5	0.0
May	414	24.7	7.5	2.2	125	7.7	14.8	0.0	2,244.0	119.5	0.0
June	388	23.9	8.5	2.5	878	54.1	0.0	0.0	2,236.7	86.8	-32.7
July	365	22.5	8.5	2.0	752	46.3	0.0	0.0	2,229.7	61.0	-25.8
Aug.	346	20.6	6.6	1.3	427	26.3	0.0	0.0	2,227.5	54.0	-7.0
Sept.	343	21.1	5.0	0.9	58	3.6	0.0	0.0	2,232.5	70.6	16.6
Oct.	372	22.2	2.7	0.6	57	3.5	0.0	0.0	2,237.2	88.7	18.1
Nov.	360	22.2	1.6	0.4	58	3.6	6.4	0.0	2,240.0	100.5	11.8
Dec.	0	274.4	59.9	15.2	0	164.5	93.2	0	0.0	0.0	1.5
Total		**528.2**	**118.1**	**30.0**		**325.4**	**171.3**	**0.0**			**1.5**
Reasonable Maximum Inflow Conditions											
Jan.	492	30.3	3.3	0.9	58	3.6	16.6	0.0	2,242.0	109.7	9.2
Feb.	508	30.3	5.3	1.5	59	3.5	15.5	0.0	2,244.0	119.5	9.8
Mar.	563	34.7	5.5	1.6	81	5.0	28.1	0.0	2,244.0	119.5	0.0
Apr.	513	30.6	6.6	2.0	114	6.8	21.8	0.0	2,244.0	119.5	0.0
May	480	29.6	7.5	2.2	838	51.6	0.0	0.0	2,238.8	95.3	-24.2
June	453	27.9	7.5	1.9	737	45.4	0.0	0.0	2,233.9	75.9	-19.4
July	428	25.5	5.8	1.3	497	29.6	0.0	0.0	2,232.5	70.5	-5.4
Aug.	425	26.2	4.5	0.9	58	3.6	0.0	0.0	2,238.0	92.2	21.7
Sept.	463	27.6	2.4	0.6	59	3.5	15.2	0.0	2,240.0	100.5	8.3
Oct.	448	27.6	1.4	0.4	58	3.6	23.6	0.0	2,240.0	100.5	0.0
Nov.	0	340.3	53.1	14.2	0	163.1	161.5	0.0	0.0	0.0	1.5
Dec.	0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total		**630.6**	**102.9**	**27.5**		**319.3**	**282.3**	**0.0**			**1.5**

Table A-25.—Davis Creek Reservoir operation estimates – 2025

Davis Creek Reservoir Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	Cont.	Reservoir Change
Month	ft³/s	KAF	in.	KAF	ft³/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	0	0.0	1.9	0.1	6	0.4	0.0	0.0	2,055.6	13.3	-0.5
Feb.	0	0.0	2.3	0.1	7	0.4	0.0	0.0	2,054.8	12.8	-0.5
Mar.	0	0.0	4.1	0.1	6	0.4	0.0	0.0	2,054.0	12.3	-0.5
Apr.	57	3.4	6.6	0.2	7	0.4	0.0	0.0	2,058.3	15.1	2.8
May	239	14.7	7.0	0.3	57	3.5	0.0	0.0	2,071.2	26.0	10.9
June	223	13.3	8.5	0.5	127	7.6	0.0	0.0	2,076.0	31.2	5.2
July	239	14.7	9.0	0.6	297	18.3	0.0	0.0	2,072.1	27.0	-4.2
Aug.	162	10.0	7.0	0.4	273	16.8	0.0	0.0	2,064.5	19.8	-7.2
Sept.	59	3.5	6.1	0.3	133	7.9	0.0	0.0	2,058.3	15.1	-4.7
Oct.	0	0.0	5.5	0.2	6	0.4	0.0	0.0	2,057.4	14.5	-0.6
Nov.	0	0.0	2.9	0.1	7	0.4	0.0	0.0	2,056.7	14.0	-0.5
Dec.	0	0.0	1.7	0.1	6	0.4	0.0	0.0	2,055.9	13.5	-0.5
Total		**59.6**	**62.6**	**3.0**		**56.9**	**0.0**	**0.0**			**-0.3**
Most Probable Inflow Conditions											
Jan.	0	0.0	1.8	0.1	6	0.4	0.0	0.0	2,055.6	13.3	-0.5
Feb.	0	0.0	2.2	0.1	7	0.4	0.0	0.0	2,054.8	12.8	-0.5
Mar.	0	0.0	3.9	0.1	6	0.4	0.0	0.0	2,054.0	12.3	-0.5
Apr.	59	3.5	6.1	0.2	6	0.4	0.0	0.0	2,058.5	15.2	2.9
May	239	14.7	6.6	0.3	42	2.6	0.0	0.0	2,072.1	27.0	11.8
June	198	11.8	7.9	0.5	99	6.1	1.0	0.0	2,076.0	31.2	4.2
July	179	11.0	8.4	0.6	231	14.2	0.0	0.0	2,072.5	27.4	-3.8
Aug.	112	6.9	6.6	0.4	211	13.0	0.0	0.0	2,065.8	20.9	-6.5
Sept.	10	0.6	5.7	0.3	99	6.1	0.0	0.0	2,058.3	15.1	-5.8
Oct.	0	0.0	5.1	0.2	6	0.4	0.0	0.0	2,057.4	14.5	-0.6
Nov.	0	0.0	2.7	0.1	6	0.4	0.0	0.0	2,056.7	14.0	-0.5
Dec.	0	0.0	1.6	0.1	6	0.4	0.0	0.0	2,055.9	13.5	-0.5
Total		**48.5**	**58.6**	**3.0**		**44.8**	**1.0**	**0.0**			**-0.3**
Reasonable Maximum Inflow Conditions											
Jan.	0	0.0	1.7	0.1	6	0.4	0.0	0.0	2,055.6	13.3	-0.5
Feb.	0	0.0	2.0	0.1	7	0.4	0.0	0.0	2,054.8	12.8	-0.5
Mar.	0	0.0	3.6	0.1	6	0.4	0.0	0.0	2,054.0	12.3	-0.5
Apr.	12	0.7	5.8	0.2	7	0.4	0.0	0.0	2,054.1	12.4	0.1
May	239	14.7	6.2	0.2	32	2.0	0.0	0.0	2,070.1	24.9	12.5
June	206	12.3	7.4	0.4	77	4.6	1.0	0.0	2,076.0	31.2	6.3
July	114	7.0	7.9	0.5	172	10.6	0.0	0.0	2,072.2	27.1	-4.1
Aug.	67	4.1	6.2	0.4	156	9.6	0.0	0.0	2,066.1	21.2	-5.9
Sept.	0	0.0	5.4	0.3	97	5.8	0.0	0.0	2,058.3	15.1	-6.1
Oct.	0	0.0	4.8	0.2	6	0.4	0.0	0.0	2,057.4	14.5	-0.6
Nov.	0	0.0	2.5	0.1	7	0.4	0.0	0.0	2,056.7	14.0	-0.5
Dec.	0	0.0	1.5	0.1	6	0.4	0.0	0.0	2,055.9	13.5	-0.5
Total		**38.8**	**55.0**	**2.7**		**35.4**	**1.0**	**0.0**			**-0.3**

Table A-26.—Bonny Reservoir operation estimates – 2025

Bonny Reservoir Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	Cont.	Reservoir Change
Month	ft^3/s	KAF	in.	KAF	ft^3/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	3	0.2	2.3	0.0	2	0.1	0.1	0.0	3,638.0	0.0	0.0
Feb.	3	0.2	3.1	0.0	2	0.1	0.1	0.0	3,638.0	0.0	0.0
Mar.	3	0.2	3.8	0.0	2	0.1	0.1	0.0	3,638.0	0.0	0.0
Apr.	3	0.2	6.2	0.0	2	0.1	0.1	0.0	3,638.0	0.0	0.0
May	3	0.2	7.7	0.0	2	0.1	0.1	0.0	3,638.0	0.0	0.0
June	3	0.2	10.0	0.0	2	0.1	0.1	0.0	3,638.0	0.0	0.0
July	2	0.1	11.5	0.0	2	0.1	0.0	0.0	3,638.0	0.0	0.0
Aug.	2	0.1	10.0	0.0	2	0.1	0.0	0.0	3,638.0	0.0	0.0
Sept.	0	0.0	8.5	0.0	2	0.1	0.0	0.1	3,638.0	0.0	0.0
Oct.	2	0.1	7.7	0.0	2	0.1	0.0	0.0	3,638.0	0.0	0.0
Nov.	2	0.1	3.8	0.0	2	0.1	0.0	0.0	3,638.0	0.0	0.0
Dec.	2	0.1	2.3	0.0	2	0.1	0.0	0.0	3,638.0	0.0	0.0
Total		**1.7**	**76.9**	**0.0**		**1.2**	**0.6**	**0.1**			**0.0**
Most Probable Inflow Conditions											
Jan.	6	0.4	2.1	0.0	2	0.1	0.3	0.0	3,638.0	0.0	0.0
Feb.	7	0.4	2.8	0.0	2	0.1	0.3	0.0	3,638.0	0.0	0.0
Mar.	6	0.4	3.4	0.0	2	0.1	0.3	0.0	3,638.0	0.0	0.0
Apr.	8	0.5	5.5	0.0	2	0.1	0.4	0.0	3,638.0	0.0	0.0
May	10	0.6	6.9	0.0	2	0.1	0.5	0.0	3,638.0	0.0	0.0
June	8	0.5	8.9	0.0	2	0.1	0.4	0.0	3,638.0	0.0	0.0
July	5	0.3	10.3	0.0	2	0.1	0.2	0.0	3,638.0	0.0	0.0
Aug.	3	0.2	8.9	0.0	2	0.1	0.1	0.0	3,638.0	0.0	0.0
Sept.	2	0.1	7.6	0.0	2	0.1	0.0	0.0	3,638.0	0.0	0.0
Oct.	3	0.2	6.9	0.0	2	0.1	0.1	0.0	3,638.0	0.0	0.0
Nov.	5	0.3	3.4	0.0	2	0.1	0.2	0.0	3,638.0	0.0	0.0
Dec.	6	0.4	2.1	0.0	2	0.1	0.3	0.0	3,638.0	0.0	0.0
Total		**4.3**	**68.8**	**0.0**		**1.2**	**3.1**	**0.0**			**0.0**
Reasonable Maximum Inflow Conditions											
Jan.	16	1.0	1.8	0.0	2	0.1	0.9	0.0	3,638.0	0.0	0.0
Feb.	17	1.0	2.5	0.0	2	0.1	0.9	0.0	3,638.0	0.0	0.0
Mar.	18	1.1	3.1	0.0	2	0.1	1.0	0.0	3,638.0	0.0	0.0
Apr.	22	1.3	4.9	0.0	2	0.1	1.2	0.0	3,638.0	0.0	0.0
May	24	1.5	6.2	0.0	2	0.1	1.4	0.0	3,638.0	0.0	0.0
June	22	1.3	8.0	0.0	2	0.1	1.2	0.0	3,638.0	0.0	0.0
July	11	0.7	9.2	0.0	2	0.1	0.6	0.0	3,638.0	0.0	0.0
Aug.	8	0.5	8.0	0.0	2	0.1	0.4	0.0	3,638.0	0.0	0.0
Sept.	5	0.3	6.8	0.0	2	0.1	0.2	0.0	3,638.0	0.0	0.0
Oct.	8	0.5	6.2	0.0	2	0.1	0.4	0.0	3,638.0	0.0	0.0
Nov.	15	0.9	3.1	0.0	2	0.1	0.8	0.0	3,638.0	0.0	0.0
Dec.	15	0.9	1.8	0.0	2	0.1	0.8	0.0	3,638.0	0.0	0.0
Total		**11.0**	**61.6**	**0.0**		**1.2**	**9.8**	**0.0**			**0.0**

Table A-27.—Enders Reservoir operation estimates – 2025

Enders Reservoir Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	Cont.	Reservoir Change
Month	ft³/s	KAF	in.	KAF	ft³/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	5	0.3	1.5	0.1	2	0.1	0.0	0.0	3,080.8	8.0	0.2
Feb.	5	0.3	1.7	0.1	2	0.1	0.0	0.0	3,081.0	8.1	0.1
Mar.	5	0.3	2.9	0.1	2	0.1	0.0	0.0	3,081.2	8.2	0.1
Apr.	5	0.3	6.2	0.2	2	0.1	0.0	0.0	3,081.2	8.2	0.0
May	5	0.3	7.9	0.3	2	0.1	0.0	0.0	3,081.0	8.1	-0.1
June	5	0.3	10.0	0.3	98	5.9	0.0	5.8	3,080.8	8.0	-0.1
July	6	0.4	10.9	0.4	248	15.3	0.0	15.2	3,080.7	7.9	-0.1
Aug.	5	0.3	9.3	0.3	234	14.4	0.0	14.3	3,080.5	7.8	-0.1
Sept.	5	0.3	6.9	0.2	43	2.6	0.0	2.5	3,080.5	7.8	0.0
Oct.	5	0.3	4.4	0.1	2	0.1	0.0	0.0	3,080.7	7.9	0.1
Nov.	5	0.3	3.2	0.1	2	0.1	0.0	0.0	3,080.8	8.0	0.1
Dec.	5	0.3	1.8	0.1	2	0.1	0.0	0.0	3,081.0	8.1	0.1
Total		**3.7**	**66.7**	**2.3**		**38.9**	**0.0**	**37.7**			**0.3**
Most Probable Inflow Conditions											
Jan.	6	0.4	1.3	0.0	2	0.1	0.0	0	3,081.1	8.2	0.3
Feb.	7	0.4	1.5	0.1	2	0.1	0.0	0	3,081.4	8.4	0.2
Mar.	6	0.4	2.5	0.1	2	0.1	0.0	0	3,081.8	8.6	0.2
Apr.	7	0.4	5.4	0.2	2	0.1	0.0	0	3,081.9	8.7	0.1
May	6	0.4	6.9	0.2	2	0.1	0.0	0	3,082.1	8.8	0.1
June	7	0.4	8.7	0.3	77	4.7	0.0	5	3,082.1	8.8	0.0
July	8	0.5	9.6	0.3	237	14.6	0.0	14	3,082.2	8.9	0.1
Aug.	6	0.4	8.1	0.3	190	11.7	0.0	12	3,082.2	8.9	0.0
Sept.	7	0.4	6.0	0.2	32	2.0	0.0	2	3,082.4	8.9	0.0
Oct.	6	0.4	3.8	0.1	2	0.1	0.0	0.0	3,082.6	9.1	0.2
Nov.	7	0.4	2.8	0.1	2	0.1	0.0	0.0	3,082.9	9.3	0.2
Dec.	6	0.4	1.6	0.1	2	0.1	0.0	0.0	3,083.2	9.5	0.2
Total		**4.9**	**58.2**	**2.0**		**33.8**	**0.0**	**32.5**			**1.6**
Reasonable Maximum Inflow Conditions											
Jan.	11	0.7	1.2	0.0	2	0.1	0.0	0.0	3,081.6	8.5	0.6
Feb.	11	0.6	1.3	0.0	2	0.1	0.0	0.0	3,082.5	9.0	0.5
Mar.	10	0.6	2.3	0.1	2	0.1	0.0	0.0	3,083.0	9.4	0.4
Apr.	10	0.6	4.9	0.2	2	0.1	0.0	0.0	3,083.5	9.7	0.3
May	11	0.7	6.3	0.2	2	0.1	0.0	0.0	3,084.1	10.1	0.4
June	10	0.6	8.0	0.3	53	3.1	0.0	1.7	3,082.4	8.9	-1.2
July	13	0.8	8.7	0.3	162	10.0	0.0	9.5	3,082.4	8.9	0.0
Aug.	11	0.7	7.4	0.3	128	7.9	0.0	7.5	3,082.4	8.9	0.0
Sept.	10	0.6	5.5	0.2	2	0.1	0.0	0.0	3,082.7	9.2	0.3
Oct.	10	0.6	3.5	0.1	2	0.1	0.0	0.0	3,083.4	9.6	0.4
Nov.	10	0.6	2.5	0.1	2	0.1	0.0	0.0	3,084.0	10.0	0.4
Dec.	10	0.6	1.4	0.1	2	0.1	0.0	0.0	3,084.6	10.4	0.4
Total		**7.7**	**53.0**	**1.9**		**21.9**	**0.0**	**18.6**			**2.5**

Table A-28.—Swanson Lake operation estimates – 2025

Swanson Lake Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	Cont.	Reservoir Change
Month	ft³/s	KAF	in.	KAF	ft³/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	23	1.4	1.5	0.3	2	0.1	0.0	0.0	2,737.5	52.0	1.0
Feb.	34	1.9	1.6	0.3	2	0.1	0.0	0.0	2,738.0	53.5	1.5
Mar.	39	2.4	3.0	0.6	2	0.1	0.0	0.0	2,738.5	55.2	1.7
Apr.	42	2.5	6.5	1.3	2	0.1	0.0	0.0	2,738.8	56.3	1.1
May	37	2.3	7.7	1.5	3	0.2	0.0	0.0	2,739.0	56.9	0.6
June	30	1.8	9.9	2.0	89	5.3	0.0	0.0	2,737.3	51.4	-5.5
July	16	1.0	9.9	1.9	377	23.2	0.0	0.0	2,728.8	27.3	-24.1
Aug.	8	0.5	9.9	1.4	323	19.9	0.0	12.5	2,725.0	19.0	-8.3
Sept.	5	0.3	7.7	0.9	69	4.1	0.0	4.0	2,724.7	18.3	-0.7
Oct.	6	0.4	4.7	0.5	2	0.1	0.0	0.0	2,724.5	18.1	-0.2
Nov.	17	1.0	3.2	0.4	2	0.1	0.0	0.0	2,724.8	18.6	0.5
Dec.	18	1.1	1.8	0.2	2	0.1	0.0	0.0	2,725.2	19.4	0.8
Total		**16.6**	**67.4**	**11.3**		**53.4**	**0.0**	**16.5**			**-31.6**
Most Probable Inflow Conditions											
Jan.	37	2.3	1.3	0.2	2	0.1	0.0	0.0	2,737.8	53.0	2.0
Feb.	58	3.2	1.4	0.3	2	0.1	0.0	0.0	2,738.7	55.8	2.8
Mar.	63	3.9	2.7	0.5	2	0.1	0.0	0.0	2,739.6	59.1	3.3
Apr.	70	4.2	5.8	1.2	2	0.1	0.0	0.0	2,740.4	62.0	2.9
May	63	3.9	6.9	1.4	3	0.2	0.0	0.0	2,741.1	64.3	2.3
June	50	3.0	8.9	1.9	63	3.9	0.0	0.0	2,740.3	61.5	-2.8
July	28	1.7	8.9	1.8	299	18.4	0.0	0.0	2,734.6	43.0	-18.5
Aug.	15	0.9	8.9	1.5	256	15.8	0.0	0.0	2,728.5	26.6	-16.4
Sept.	7	0.4	6.9	0.9	29	1.8	0.0	0.0	2,727.5	24.3	-2.3
Oct.	11	0.7	4.2	0.6	2	0.1	0.0	0.0	2,727.5	24.3	0.0
Nov.	27	1.6	2.9	0.4	2	0.1	0.0	0.0	2,727.9	25.4	1.1
Dec.	29	1.8	1.6	0.2	2	0.1	0.0	0.0	2,728.6	26.9	1.5
Total		**27.6**	**60.4**	**10.9**		**40.8**	**0.0**	**0.0**			**-24.1**
Reasonable Maximum Inflow Conditions											
Jan.	55	3.4	1.2	0.2	2	0.1	0.0	0.0	2,738.1	54.1	3.1
Feb.	84	4.7	1.3	0.2	2	0.1	0.0	0.0	2,739.4	58.5	4.4
Mar.	96	5.9	2.4	0.5	2	0.1	0.0	0.0	2,741.0	63.8	5.3
Apr.	106	6.3	5.3	1.1	2	0.1	0.0	0.0	2,742.3	68.9	5.1
May	94	5.8	6.3	1.4	3	0.2	0.0	0.0	2,743.4	73.1	4.2
June	75	4.5	8.1	1.8	54	3.2	0.0	0.0	2,743.3	72.6	-0.5
July	41	2.5	8.1	1.8	208	12.8	0.0	0.0	2,740.0	60.5	-12.1
Aug.	23	1.4	8.1	1.6	183	11.3	0.0	0.0	2,736.6	49.0	-11.5
Sept.	12	0.7	6.3	1.2	25	1.5	0.0	0.0	2,735.9	47.0	-2.0
Oct.	16	1.0	3.9	0.7	2	0.1	0.0	0.0	2,736.0	47.2	0.2
Nov.	40	2.4	2.6	0.5	2	0.1	0.0	0.0	2,736.6	49.0	1.8
Dec.	44	2.7	1.4	0.3	2	0.1	0.0	0.0	2,737.3	51.3	2.3
Total		**41.3**	**55.0**	**11.3**		**29.7**	**0.0**	**0.0**			**0.3**

Table A-29.—Hugh Butler Lake operation estimates – 2025

Hugh Butler Lake Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	Cont.	Reservoir Change
Month	ft^3/s	KAF	in.	KAF	ft^3/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	8	0.5	1.3	0.1	2	0.1	0.0	0.0	2,564.1	13.9	0.3
Feb.	11	0.6	1.4	0.1	2	0.1	0.0	0.0	2,564.5	14.3	0.4
Mar.	11	0.7	2.6	0.1	2	0.1	0.0	0.0	2,565.1	14.8	0.5
Apr.	12	0.7	7.2	0.4	2	0.1	0.0	0.0	2,565.3	15.0	0.2
May	11	0.7	8.5	0.5	2	0.1	0.0	0.0	2,565.4	15.1	0.1
June	12	0.7	10.4	0.6	28	1.6	0.0	0.0	2,563.7	13.6	-1.5
July	10	0.6	11.5	0.6	71	4.4	0.0	2.0	2,560.9	11.2	-2.4
Aug.	10	0.6	10.2	0.5	61	3.7	0.0	3.6	2,560.9	11.2	0.0
Sept.	7	0.4	7.9	0.4	13	0.8	0.0	0.7	2,560.8	11.1	-0.1
Oct.	6	0.4	5.0	0.2	2	0.1	0.0	0.0	2,560.9	11.2	0.1
Nov.	8	0.5	3.0	0.1	2	0.1	0.0	0.0	2,561.3	11.5	0.3
Dec.	8	0.5	1.6	0.1	2	0.1	0.0	0.0	2,561.7	11.8	0.3
Total		**6.9**	**70.6**	**3.7**		**11.3**	**0.0**	**6.3**			**-1.8**
Most Probable Inflow Conditions											
Jan.	11	0.7	1.1	0.1	2	0.1	0.0	0.0	2,564.3	14.1	0.5
Feb.	14	0.8	1.2	0.1	2	0.1	0.0	0.0	2,564.9	14.7	0.6
Mar.	16	1.0	2.3	0.1	2	0.1	0.0	0.0	2,565.8	15.5	0.8
Apr.	17	1.0	6.3	0.4	2	0.1	0.0	0.0	2,566.3	16.0	0.5
May	18	1.1	7.5	0.4	2	0.1	0.0	0.0	2,566.9	16.6	0.6
June	17	1.0	9.1	0.5	22	1.3	0.0	0.0	2,566.1	15.8	-0.8
July	13	0.8	10.1	0.6	61	3.7	0.0	0.0	2,562.2	12.3	-3.5
Aug.	15	0.9	9.0	0.4	50	3.1	0.0	2	2,560.9	11.2	-1.1
Sept.	8	0.5	7.0	0.3	11	0.7	0.0	0	2,560.9	11.2	0.0
Oct.	10	0.6	4.4	0.2	2	0.1	0.0	0.0	2,561.3	11.5	0.3
Nov.	12	0.7	2.7	0.1	2	0.1	0.0	0.0	2,561.9	12.0	0.5
Dec.	11	0.7	1.4	0.1	2	0.1	0.0	0.0	2,562.5	12.5	0.5
Total		**9.8**	**62.1**	**3.3**		**9.6**	**0.0**	**2.0**			**-1.1**
Reasonable Maximum Inflow Conditions											
Jan.	18	1.1	1.0	0.1	2	0.1	0.0	0.0	2,564.7	14.5	0.9
Feb.	23	1.3	1.1	0.1	2	0.1	0.0	0.0	2,565.9	15.6	1.1
Mar.	28	1.7	2.1	0.1	2	0.1	0.0	0.0	2,567.4	17.1	1.5
Apr.	27	1.6	5.8	0.3	2	0.1	0.0	0.0	2,568.5	18.3	1.2
May	28	1.7	6.8	0.4	2	0.1	0.0	0.0	2,569.6	19.5	1.2
June	29	1.7	8.4	0.5	16	1.0	0.0	0.0	2,569.8	19.7	0.2
July	23	1.4	9.3	0.6	44	2.7	0.0	0.0	2,568.0	17.8	-1.9
Aug.	23	1.4	8.3	0.5	37	2.3	0.0	0.0	2,566.7	16.4	-1.4
Sept.	15	0.9	6.4	0.4	7	0.4	0.0	0.0	2,566.7	16.5	0.1
Oct.	16	1.0	4.0	0.2	2	0.1	0.0	0.0	2,567.4	17.2	0.7
Nov.	18	1.1	2.4	0.1	2	0.1	0.0	0.0	2,568.3	18.1	0.9
Dec.	18	1.1	1.3	0.1	2	0.1	0.0	0.0	2,569.1	19.0	0.9
Total		**16.0**	**56.9**	**3.4**		**7.3**	**0.0**	**0.0**			**5.3**

Table A-30.—Harry Strunk Lake operation estimates – 2025

Harry Strunk Lake Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	End of Month Cont.	Reservoir Change
Month	ft^3/s	KAF	in.	KAF	ft^3/s	KAF	KAF	KAF	ft	KAF	KAF
REASONABLE MINIMUM INFLOW CONDITIONS											
Jan.	34	2.1	1.3	0.1	2	0.1	0.0	0.0	2,364.1	31.2	1.9
Feb.	43	2.4	1.4	0.1	2	0.1	0.0	0.0	2,365.4	33.4	2.2
Mar.	45	2.8	2.6	0.3	2	0.1	1.2	0.0	2,366.1	34.6	1.2
Apr.	45	2.7	7.1	0.8	2	0.1	1.8	0.0	2,366.1	34.6	0.0
May	49	3.0	8.2	0.9	2	0.1	2.0	0.0	2,366.1	34.6	0.0
June	50	3.0	10.2	1.1	89	5.3	0.0	0.0	2,364.1	31.2	-3.4
July	47	2.9	11.2	1.1	318	19.6	0.0	0.0	2,349.8	13.4	-17.8
Aug.	37	2.3	9.9	0.5	268	16.5	0.0	9.2	2,343.0	7.9	-5.5
Sept.	23	1.4	7.8	0.3	27	1.6	0.0	0.5	2,343.0	7.9	0.0
Oct.	29	1.8	5.1	0.2	2	0.1	0.0	0.0	2,345.1	9.4	1.5
Nov.	34	2.0	3.1	0.1	2	0.1	0.0	0.0	2,347.3	11.2	1.8
Dec.	32	2.0	1.6	0.1	2	0.1	0.0	0.0	2,349.3	13.0	1.8
Total		**28.4**	**69.5**	**5.6**		**43.8**	**5.0**	**9.7**			**-16.4**
Most Probable Inflow Conditions											
Jan.	49	3.0	1.2	0.1	2	0.1	0.0	0.0	2,364.7	32.2	2.8
Feb.	63	3.5	1.2	0.1	2	0.1	0.9	0.0	2,366.1	34.6	2.4
Mar.	65	4.0	2.3	0.2	2	0.1	3.7	0.0	2,366.1	34.6	0.0
Apr.	65	3.9	6.3	0.7	2	0.1	3.1	0.0	2,366.1	34.6	0.0
May	70	4.3	7.3	0.8	2	0.1	3.4	0.0	2,366.1	34.6	0.0
June	72	4.3	9.0	1.0	74	4.4	0.0	0.0	2,365.4	33.5	-1.1
July	67	4.1	10.0	1.0	265	16.3	0.0	0.0	2,356.2	20.3	-13.2
Aug.	54	3.3	8.8	0.6	222	13.7	0.0	0.0	2,344.9	9.3	-11.0
Sept.	35	2.1	6.9	0.3	20	1.2	0.0	0.0	2,345.7	9.9	0.6
Oct.	44	2.7	4.5	0.2	2	0.1	0.0	0.0	2,348.6	12.3	2.4
Nov.	49	2.9	2.7	0.1	2	0.1	0.0	0.0	2,351.4	15.0	2.7
Dec.	45	2.8	1.4	0.1	2	0.1	0.0	0.0	2,353.9	17.6	2.6
Total		**40.9**	**61.6**	**5.2**		**36.4**	**11.1**	**0.0**			**-11.8**
Reasonable Maximum Inflow Conditions											
Jan.	76	4.7	1.0	0.1	2	0.1	0.0	0.0	2,365.6	33.9	4.5
Feb.	97	5.4	1.1	0.1	2	0.1	4.5	0.0	2,366.1	34.6	0.7
Mar.	102	6.3	2.0	0.2	2	0.1	6.0	0.0	2,366.1	34.6	0.0
Apr.	101	6.0	5.6	0.6	2	0.1	5.3	0.0	2,366.1	34.6	0.0
May	109	6.7	6.5	0.7	2	0.1	5.9	0.0	2,366.1	34.6	0.0
June	112	6.7	8.1	0.9	47	2.8	3.0	0.0	2,366.1	34.6	0.0
July	104	6.4	8.9	1.0	182	11.2	0.0	0.0	2,362.6	28.8	-5.8
Aug.	83	5.1	7.8	0.7	154	9.5	0.0	0.0	2,358.9	23.7	-5.1
Sept.	54	3.2	6.1	0.5	2	0.1	0.0	0.0	2,360.8	26.3	2.6
Oct.	67	4.1	4.0	0.3	2	0.1	0.0	0.0	2,363.3	30.0	3.7
Nov.	74	4.4	2.4	0.2	2	0.1	0.0	0.0	2,365.8	34.1	4.1
Dec.	71	4.4	1.3	0.1	2	0.1	3.7	0.0	2,366.1	34.6	0.5
Total		**63.4**	**54.8**	**5.4**		**24.4**	**28.4**	**0.0**			**5.2**

Table A-31.—Keith Sebelius Lake Operation Estimates – 2025

Keith Sebelius Lake Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	End of Month Cont.	Reservoir Change
Month	ft^3/s	KAF	in.	KAF	ft^3/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	2	0.1	1.5	0.1	2	0.1	0.0	0.0	2,292.5	14.6	-0.1
Feb.	4	0.2	1.8	0.1	2	0.1	0.0	0.0	2,292.5	14.6	0.0
Mar.	6	0.4	3.0	0.2	2	0.1	0.0	0.0	2,292.6	14.7	0.1
Apr.	7	0.4	7.8	0.6	2	0.1	0.0	0.0	2,292.3	14.4	-0.3
May	10	0.6	8.7	0.6	6	0.4	0.0	0.0	2,292.0	14.0	-0.4
June	13	0.8	11.0	0.8	57	3.4	0.0	0.0	2,288.9	10.6	-3.4
July	10	0.6	12.3	0.7	146	9.0	0.0	8.6	2,288.4	10.1	-0.5
Aug.	8	0.5	11.0	0.6	138	8.5	0.0	8.4	2,288.2	9.9	-0.2
Sept.	3	0.2	8.7	0.5	27	1.6	0.0	1.5	2,287.8	9.5	-0.4
Oct.	2	0.1	6.0	0.3	2	0.1	0.0	0.0	2,287.4	9.2	-0.3
Nov.	2	0.1	3.3	0.2	2	0.1	0.0	0.0	2,287.2	9.0	-0.2
Dec.	2	0.1	1.7	0.1	2	0.1	0.0	0.0	2,287.1	8.9	-0.1
Total		**4.1**	**76.8**	**4.8**		**23.6**	**0.0**	**18.5**			**-5.8**
Most Probable Inflow Conditions											
Jan.	3	0.2	1.4	0.1	2	0.1	0.0	0.0	2,292.6	14.7	0.0
Feb.	5	0.3	1.6	0.1	2	0.1	0.0	0.0	2,292.7	14.8	0.1
Mar.	10	0.6	2.7	0.2	2	0.1	0.0	0.0	2,292.9	15.1	0.3
Apr.	10	0.6	6.9	0.5	2	0.1	0.0	0.0	2,292.9	15.1	0.0
May	16	1.0	7.7	0.6	3	0.2	0.0	0.0	2,293.0	15.3	0.2
June	22	1.3	9.7	0.7	45	2.8	0.0	0.0	2,291.3	13.1	-2.2
July	15	0.9	10.9	0.7	138	8.5	0.0	5	2,288.4	10.1	-3.0
Aug.	13	0.8	9.7	0.5	112	6.9	0.0	7	2,288.4	10.1	0.0
Sept.	7	0.4	7.7	0.4	21	1.3	0.0	1	2,288.3	10.0	-0.1
Oct.	3	0.2	5.3	0.3	2	0.1	0.0	0	2,288.1	9.8	-0.2
Nov.	3	0.2	2.9	0.2	2	0.1	0.0	0	2,288.0	9.7	-0.1
Dec.	3	0.2	1.5	0.1	2	0.1	0.0	0	2,288.0	9.7	0.0
Total		**6.7**	**68.0**	**4.4**		**20.4**	**0.0**	**13.1**			**-5.0**
Reasonable Maximum Inflow Conditions											
Jan.	8	0.5	1.2	0.1	2	0.1	0.0	0.0	2,292.8	15.0	0.3
Feb.	11	0.6	1.5	0.1	2	0.1	0.0	0.0	2,293.1	15.4	0.4
Mar.	18	1.1	2.4	0.2	2	0.1	0.0	0.0	2,293.7	16.2	0.8
Apr.	20	1.2	6.2	0.5	2	0.1	0.0	0.0	2,294.2	16.8	0.6
May	31	1.9	6.9	0.6	3	0.2	0.0	0.0	2,295.0	17.9	1.1
June	40	2.4	8.8	0.7	27	1.6	0.0	0.0	2,295.0	18.0	0.1
July	28	1.7	9.8	0.8	71	4.4	0.0	0.0	2,292.4	14.5	-3.5
Aug.	26	1.6	8.8	0.6	68	4.2	0.0	0.0	2,289.6	11.3	-3.2
Sept.	12	0.7	6.9	0.4	15	0.9	0.0	0.0	2,289.0	10.7	-0.6
Oct.	5	0.3	4.8	0.3	2	0.1	0.0	0.0	2,288.9	10.6	-0.1
Nov.	8	0.5	2.6	0.1	2	0.1	0.0	0.0	2,289.2	10.9	0.3
Dec.	6	0.4	1.3	0.1	2	0.1	0.0	0.0	2,289.4	11.1	0.2
Total		**12.9**	**61.2**	**4.5**		**12.0**	**0.0**	**0.0**			**-3.6**

Table A-32.—Harlan County Lake operation estimates – 2025

Harlan County Lake Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	End of Month Cont.	Reservoir Change
Month	ft³/s	KAF	in.	KAF	ft³/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	50	3.1	1.4	1.3	0	0.0	0.0	0.0	1,938.1	221.5	1.8
Feb.	79	4.4	1.6	1.5	0	0.0	0.0	0.0	1,938.4	224.4	2.9
Mar.	106	6.5	2.8	2.6	0	0.0	0.0	0.0	1,938.7	228.3	3.9
Apr.	92	5.5	6.5	6.1	0	0.0	0.0	0.0	1,938.7	227.7	-0.6
May	115	7.1	8.0	7.5	5	0.3	0.0	0.0	1,938.6	227.0	-0.7
June	96	5.7	9.6	8.9	272	16.2	0.0	0.0	1,936.8	207.5	-19.4
July	97	6.0	10.7	9.5	617	38.0	0.0	0.0	1,932.7	166.1	-41.5
Aug.	78	4.8	9.4	7.3	537	33.1	0.0	0.0	1,928.6	130.5	-35.6
Sept.	39	2.3	7.5	5.0	55	3.3	0.0	1.8	1,928.1	126.3	-4.2
Oct.	36	2.2	5.1	3.3	0	0.0	0.0	0.0	1,927.9	125.2	-1.1
Nov.	49	2.9	3.2	2.1	0	0.0	0.0	0.0	1,928.0	126.0	0.8
Dec.	47	2.9	2.0	1.3	0	0.0	0.0	0.0	1,928.2	127.6	1.6
Total		**53.4**	**67.8**	**56.4**		**90.9**	**0.0**	**1.8**			**-92.1**
Most Probable Inflow Conditions											
Jan.	109	6.7	1.2	1.1	0	0.0	0.0	0	1,938.4	225.3	5.6
Feb.	169	9.4	1.4	1.3	0	0.0	0.0	0	1,939.2	233.4	8.1
Mar.	227	14.0	2.4	2.3	0	0.0	0.0	0	1,940.2	245.1	11.7
Apr.	196	11.7	5.7	5.6	0	0.0	0.0	0	1,940.7	251.2	6.1
May	248	15.3	7.0	7.0	0	0.0	0.0	0	1,941.4	259.5	8.3
June	206	12.3	8.4	8.5	49	2.9	0.0	0	1,941.4	260.4	0.9
July	209	12.9	9.4	9.5	450	27.7	0.0	0	1,939.4	236.1	-24.3
Aug.	167	10.3	8.3	7.9	388	23.9	0.0	0	1,937.5	214.6	-21.5
Sept.	82	4.9	6.5	5.9	27	1.6	0.0	0	1,937.2	212.0	-2.6
Oct.	78	4.8	4.5	4.0	0	0.0	0.0	0	1,937.3	212.8	0.8
Nov.	104	6.2	2.8	2.5	0	0.0	0.0	0	1,937.6	216.5	3.7
Dec.	102	6.3	1.8	1.6	0	0.0	0.0	0	1,938.1	221.2	4.7
Total		**114.8**	**59.4**	**57.2**		**56.1**	**0.0**	**0.0**			**1.5**
Reasonable Maximum Inflow Conditions											
Jan.	227	14.0	1.1	1.0	0	0.0	0.0	0.0	1,939.1	232.7	13.0
Feb.	356	19.8	1.3	1.2	0	0.0	0.0	0.0	1,940.7	251.3	18.6
Mar.	477	29.4	2.2	2.2	0	0.0	0.0	0.0	1,942.9	278.5	27.2
Apr.	413	24.6	5.0	5.2	0	0.0	0.0	0.0	1,944.4	297.9	19.4
May	521	32.1	6.2	6.6	0	0.0	9.3	0.0	1,945.7	314.1	16.2
June	433	25.8	7.4	8.2	37	2.2	15.4	0.0	1,945.7	314.1	0.0
July	438	27.0	8.3	9.2	143	8.8	9.0	0.0	1,945.7	314.1	0.0
Aug.	352	21.7	7.3	8.1	136	8.4	5.2	0.0	1,945.7	314.1	0.0
Sept.	174	10.4	5.8	6.4	20	1.2	2.8	0.0	1,945.7	314.1	0.0
Oct.	164	10.1	3.9	4.3	0	0.0	5.8	0.0	1,945.7	314.1	0.0
Nov.	218	13.0	2.5	2.8	0	0.0	10.2	0.0	1,945.7	314.1	0.0
Dec.	216	13.3	1.6	1.8	0	0.0	11.5	0.0	1,945.7	314.1	0.0
Total		**241.2**	**52.6**	**57.0**		**20.6**	**69.2**	**0.0**			**94.4**

Table A-33.—Lovewell Reservoir operation estimates – 2025

Lovewell Reservoir Operation Estimates – 2025											
	White Rock Creek Inflow	Courtland Canal Inflow	Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	End of Month Cont.	Reservoir Change
Month	KAF	KAF	in.	KAF	ft^3/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	0.3	1.1	1.2	0.0	0	0.0	0.0	0.0	1,579.4	25.8	1.4
Feb.	0.5	2.5	1.5	0.0	0	0.0	0.0	0.0	1,580.5	28.8	3.0
Mar.	1.1	3.3	2.6	0.0	0	0.0	0.0	0.0	1,582.0	33.2	4.4
Apr.	1.0	2.3	5.4	0.1	0	0.0	0.0	0.0	1,583.1	36.4	3.2
May	1.3	2.7	6.9	0.1	10	0.6	0.0	0.0	1,584.2	39.7	3.3
June	1.4	6.7	8.9	0.1	111	6.6	0.0	0.0	1,584.6	41.1	1.4
July	0.9	3.5	9.7	0.1	334	20.6	0.0	0.0	1,579.0	24.8	-16.3
Aug.	0.1	5.2	7.9	0.1	231	14.2	0.0	0.0	1,575.0	15.8	-9.0
Sept.	0.7	0.8	6.0	0.1	32	1.9	0.0	0.0	1,574.7	15.3	-0.5
Oct.	0.5	1.9	4.1	0.0	0	0.0	0.0	0.0	1,575.9	17.7	2.4
Nov.	0.4	2.5	3.1	0.0	0	0.0	0.0	0.0	1,577.3	20.6	2.9
Dec.	0.3	2.6	1.5	0.0	0	0.0	0.0	0.0	1,578.5	23.5	2.9
Total	**8.5**	**35.1**	**58.8**	**0.6**		**43.9**	**0.0**	**0.0**			**-0.9**
Most Probable Inflow Conditions											
Jan.	0.9	1.9	1.0	0.0	0	0.0	0.0	0.0	1,579.9	27.2	2.8
Feb.	1.3	3.0	1.3	0.0	0	0.0	0.0	0.0	1,581.4	31.5	4.3
Mar.	3.0	0.5	2.3	0.0	0	0.0	0.0	0.0	1,582.6	35.0	3.5
Apr.	2.7	0.0	4.7	0.1	0	0.0	0.0	0.0	1,583.5	37.6	2.6
May	3.4	0.0	6.0	0.1	8	0.5	0.0	0.0	1,584.4	40.4	2.8
June	3.7	0.0	7.8	0.1	89	5.3	0.0	0.0	1,583.8	38.7	-1.7
July	2.5	2.1	8.5	0.1	269	16.6	0.0	0.0	1,579.7	26.6	-12.1
Aug.	0.3	3.6	6.9	0.1	185	11.4	0.0	0.0	1,576.6	19.0	-7.6
Sept.	2.0	0.8	5.2	0.1	25	1.5	0.0	0.0	1,577.1	20.2	1.2
Oct.	1.3	4.7	3.6	0.0	0	0.0	0.0	0.0	1,579.5	26.2	6.0
Nov.	1.1	1.9	2.7	0.0	0	0.0	0.0	0.0	1,580.6	29.2	3.0
Dec.	0.8	0.0	1.3	0.0	0	0.0	0.0	0.0	1,580.9	30.0	0.8
Total	**23.0**	**18.5**	**51.3**	**0.6**		**35.3**	**0.0**	**0.0**			**5.6**
Reasonable Maximum Inflow Conditions											
Jan.	2.6	1.0	0.9	0.0	0	0.0	0.0	0.0	1,580.2	28.0	3.6
Feb.	3.8	0.0	1.1	0.0	0	0.0	0.0	0.0	1,581.5	31.8	3.8
Mar.	8.8	0.0	2.0	0.0	0	0.0	0.0	0.0	1,584.4	40.6	8.8
Apr.	8.0	0.0	4.0	0.0	0	0.0	7.5	0.0	1,584.6	41.1	0.5
May	10.0	0.0	5.1	0.1	6	0.4	9.5	0.0	1,584.6	41.1	0.0
June	10.8	0.0	6.7	0.1	65	3.9	6.8	0.0	1,584.6	41.1	0.0
July	7.3	0.0	7.3	0.1	196	12.1	0.0	0.0	1,583.0	36.2	-4.9
Aug.	0.7	0.0	5.9	0.1	133	8.2	0.0	0.0	1,580.4	28.6	-7.6
Sept.	5.8	0.0	4.5	0.0	17	1.0	0.0	0.0	1,582.1	33.4	4.8
Oct.	3.9	0.0	3.1	0.0	0	0.0	0.0	0.0	1,583.4	37.3	3.9
Nov.	3.4	0.0	2.3	0.0	0	0.0	10.7	0.0	1,580.9	30.0	-7.3
Dec.	2.3	0.0	1.1	0.0	0	0.0	2.3	0.0	1,580.9	30.0	0.0
Total	**67.4**	**1.0**	**44.0**	**0.4**		**25.6**	**36.8**	**0.0**			**5.6**

Table A-34.—Kirwin Reservoir operation estimates – 2025

Kirwin Reservoir Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	End of Month Cont.	Reservoir Change
Month	ft^3/s	KAF	in.	KAF	ft^3/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	6	0.4	1.3	0.2	0	0.0	0.0	0.0	1,716.2	45.0	0.2
Feb.	11	0.6	1.6	0.3	0	0.0	0.0	0.0	1,716.3	45.3	0.3
Mar.	18	1.1	2.8	0.5	0	0.0	0.0	0.0	1,716.5	45.9	0.6
Apr.	20	1.2	6.4	1.2	0	0.0	0.0	0.0	1,716.5	45.9	0.0
May	32	2.0	7.8	1.5	8	0.5	0.0	0.0	1,716.5	45.9	0.0
June	27	1.6	9.6	1.8	87	5.2	0.0	0.0	1,714.8	40.5	-5.4
July	26	1.6	10.9	1.9	193	11.9	0.0	0.0	1,710.2	28.3	-12.2
Aug.	18	1.1	9.6	1.2	179	11.0	0.0	0.0	1,704.0	17.2	-11.1
Sept.	10	0.6	7.4	0.6	8	0.5	0.0	0.0	1,703.6	16.7	-0.5
Oct.	6	0.4	5.1	0.4	0	0.0	0.0	0.0	1,703.6	16.7	0.0
Nov.	8	0.5	3.0	0.3	0	0.0	0.0	0.0	1,703.8	16.9	0.2
Dec.	6	0.4	1.6	0.1	0	0.0	0.0	0.0	1,704.0	17.2	0.3
Total		**11.5**	**67.1**	**10.0**		**29.1**	**0.0**	**0.0**			**-27.6**
Most Probable Inflow Conditions											
Jan.	19	1.2	1.2	0.2	0	0.0	0.0	0.0	1,716.5	45.8	1.0
Feb.	32	1.8	1.5	0.3	0	0.0	0.0	0.0	1,717.0	47.3	1.5
Mar.	52	3.2	2.6	0.5	0	0.0	0.0	0.0	1,717.8	50.0	2.7
Apr.	57	3.4	5.8	1.2	0	0.0	0.0	0.0	1,718.4	52.2	2.2
May	91	5.6	7.1	1.5	6	0.4	0.0	0.0	1,719.4	55.9	3.7
June	75	4.5	8.7	1.8	71	4.4	0.0	0.0	1,718.9	54.2	-1.7
July	71	4.4	9.9	2.1	193	11.9	0.0	0.0	1,716.1	44.6	-9.6
Aug.	50	3.1	8.7	1.6	149	9.2	0.0	0.0	1,713.6	36.9	-7.7
Sept.	25	1.5	6.7	1.1	8	0.5	0.0	0.0	1,713.6	36.8	-0.1
Oct.	16	1.0	4.6	0.8	0	0.0	0.0	0.0	1,713.6	37.0	0.2
Nov.	23	1.4	2.7	0.4	0	0.0	0.0	0.0	1,714.0	38.0	1.0
Dec.	18	1.1	1.5	0.3	0	0.0	0.0	0.0	1,714.2	38.8	0.8
Total		**32.2**	**61.0**	**11.8**		**26.4**	**0.0**	**0.0**			**-6.0**
Reasonable Maximum Inflow Conditions											
Jan.	54	3.3	1.0	0.2	0	0.0	0.0	0.0	1,717.2	47.9	3.1
Feb.	86	4.8	1.3	0.3	0	0.0	0.0	0.0	1,718.4	52.4	4.5
Mar.	138	8.5	2.3	0.5	0	0.0	0.0	0.0	1,720.6	60.4	8.0
Apr.	154	9.2	5.2	1.1	0	0.0	0.0	0.0	1,722.7	68.5	8.1
May	242	14.9	6.4	1.5	5	0.3	0.0	0.0	1,725.8	81.6	13.1
June	200	11.9	7.8	2.1	59	3.5	0.0	0.0	1,727.2	87.9	6.3
July	188	11.6	8.9	2.5	167	10.3	0.0	0.0	1,726.9	86.7	-1.2
Aug.	131	8.1	7.8	2.1	119	7.3	0.0	0.0	1,726.6	85.4	-1.3
Sept.	69	4.1	6.0	1.6	7	0.4	0.0	0.0	1,727.0	87.5	2.1
Oct.	44	2.7	4.2	1.2	0	0.0	0.0	0.0	1,727.3	89.0	1.5
Nov.	60	3.6	2.5	0.7	0	0.0	0.0	0.0	1,727.9	91.9	2.9
Dec.	47	2.9	1.3	0.4	0	0.0	0.0	0.0	1,728.5	94.4	2.5
Total		**85.6**	**54.7**	**14.2**		**21.8**	**0.0**	**0.0**			**49.6**

Table A-35.—Webster Reservoir operation estimates – 2025

Webster Reservoir Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	End of Month Cont.	Reservoir Change
Month	ft³/s	KAF	in.	KAF	ft³/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	3	0.2	1.3	0.1	0	0.0	0.0	0.0	1,867.0	12.7	0.1
Feb.	5	0.3	1.5	0.1	0	0.0	0.0	0.0	1,867.1	12.9	0.2
Mar.	8	0.5	2.9	0.2	0	0.0	0.0	0.0	1,867.3	13.2	0.3
Apr.	12	0.7	6.5	0.6	0	0.0	0.0	0.0	1,867.4	13.3	0.1
May	16	1.0	8.2	0.7	16	1.0	0.0	0.0	1,866.9	12.6	-0.7
June	12	0.7	10.3	0.9	107	6.4	0.0	1.4	1,863.0	7.4	-5.2
July	11	0.7	11.4	0.8	253	15.6	0.0	15.6	1,862.9	7.3	-0.1
Aug.	6	0.4	10.5	0.7	227	14.0	0.0	14.0	1,862.7	7.0	-0.3
Sept.	3	0.2	7.7	0.5	10	0.6	0.0	0.6	1,862.4	6.7	-0.3
Oct.	2	0.1	5.1	0.3	0	0.0	0.0	0.0	1,862.2	6.5	-0.2
Nov.	3	0.2	3.2	0.2	0	0.0	0.0	0.0	1,862.2	6.5	0.0
Dec.	3	0.2	1.7	0.1	0	0.0	0.0	0.0	1,862.3	6.6	0.1
Total		**5.2**	**70.3**	**5.2**		**37.6**	**0.0**	**31.6**			**-6.0**
Most Probable Inflow Conditions											
Jan.	13	0.8	1.1	0.1	0	0.0	0.0	0.0	1,867.4	13.3	0.7
Feb.	20	1.1	1.4	0.1	0	0.0	0.0	0.0	1,868.1	14.3	1.0
Mar.	31	1.9	2.6	0.2	0	0.0	0.0	0.0	1,869.2	16.0	1.7
Apr.	45	2.7	5.8	0.5	0	0.0	0.0	0.0	1,870.6	18.2	2.2
May	67	4.1	7.3	0.7	13	0.8	0.0	0.0	1,872.0	20.8	2.6
June	49	2.9	9.3	1.0	71	4.4	0.0	0.0	1,870.6	18.3	-2.5
July	45	2.8	10.2	1.0	208	12.8	0.0	0	1,863.0	7.4	-10.9
Aug.	28	1.7	9.5	0.6	161	9.9	0.0	9	1,863.0	7.4	0.0
Sept.	17	1.0	6.9	0.5	5	0.3	0.0	0.0	1,863.2	7.6	0.2
Oct.	8	0.5	4.6	0.3	0	0.0	0.0	0.0	1,863.3	7.8	0.2
Nov.	12	0.7	2.8	0.2	0	0.0	0.0	0.0	1,863.7	8.3	0.5
Dec.	11	0.7	1.5	0.1	0	0.0	0.0	0.0	1,864.2	8.9	0.6
Total		**20.9**	**63.0**	**5.3**		**28.2**	**0.0**	**8.9**			**-3.7**
Reasonable Maximum Inflow Conditions											
Jan.	55	3.4	1.0	0.1	0	0.0	0.0	0.0	1,869.1	15.9	3.3
Feb.	83	4.6	1.3	0.1	0	0.0	0.0	0.0	1,871.8	20.4	4.5
Mar.	131	8.1	2.4	0.2	0	0.0	0.0	0.0	1,875.9	28.3	7.9
Apr.	188	11.2	5.3	0.6	0	0.0	0.0	0.0	1,880.5	38.9	10.6
May	281	17.3	6.7	1.0	6	0.4	0.0	0.0	1,886.2	54.8	15.9
June	203	12.1	8.5	1.5	42	2.5	0.0	0.0	1,888.7	62.9	8.1
July	190	11.7	9.4	1.8	125	7.7	0.0	0.0	1,889.3	65.1	2.2
Aug.	112	6.9	8.7	1.7	101	6.2	0.0	0.0	1,889.1	64.1	-1.0
Sept.	67	4.0	6.4	1.3	2	0.1	0.0	0.0	1,889.8	66.7	2.6
Oct.	37	2.3	4.2	0.8	0	0.0	0.0	0.0	1,890.2	68.2	1.5
Nov.	52	3.1	2.6	0.5	0	0.0	0.0	0.0	1,891.0	70.8	2.6
Dec.	47	2.9	1.4	0.3	0	0.0	0.0	0.0	1,891.7	73.4	2.6
Total		**87.6**	**57.9**	**9.9**		**16.9**	**0.0**	**0.0**			**60.8**

Table A-36.—Waconda Lake operation estimates – 2025

Waconda Lake Operation Estimates – 2025											
	Inflow		Evaporation		Release Requirement		Reservoir Spill	Shortage	End of Month Elev.	Cont.	Reservoir Change
Month	ft³/s	KAF	in.	KAF	ft³/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	31	1.9	1.2	0.7	19	1.2	0.0	0.0	1,449.1	148.5	0.1
Feb.	47	2.6	1.4	0.8	20	1.1	0.0	0.0	1,449.2	149.2	0.7
Mar.	89	5.5	2.7	1.5	18	1.1	0.0	0.0	1,449.5	152.1	2.9
Apr.	92	5.5	6.8	3.8	17	1.0	0.0	0.0	1,449.6	152.8	0.7
May	107	6.6	8.4	4.7	18	1.1	0.0	0.0	1,449.6	153.6	0.8
June	91	5.4	10.4	5.8	45	2.7	0.0	0.0	1,449.3	150.5	-3.1
July	148	9.1	12.3	6.7	156	9.6	0.0	0.0	1,448.5	143.3	-7.2
Aug.	54	3.3	10.6	5.5	125	7.7	0.0	0.0	1,447.4	133.4	-9.9
Sept.	42	2.5	8.5	4.2	35	2.1	0.0	0.0	1,446.9	129.6	-3.8
Oct.	32	2.0	5.5	2.7	21	1.3	0.0	0.0	1,446.7	127.6	-2.0
Nov.	37	2.2	2.9	1.4	27	1.6	0.0	0.0	1,446.6	126.8	-0.8
Dec.	29	1.8	1.4	0.7	24	1.5	0.0	0.0	1,446.6	126.4	-0.4
Total		**48.4**	**72.1**	**38.5**		**32.0**	**0.0**	**0.0**			**-22.1**
Most Probable Inflow Conditions											
Jan.	94	5.8	1.0	0.5	10	0.6	0.0	0.0	1,449.6	153.2	4.7
Feb.	140	7.8	1.3	0.7	10	0.6	0.0	0.0	1,450.3	159.7	6.5
Mar.	266	16.4	2.4	1.4	10	0.6	0.0	0.0	1,451.7	174.1	14.4
Apr.	278	16.6	6.1	3.8	8	0.5	0.0	0.0	1,452.8	186.4	12.3
May	321	19.8	7.5	4.9	10	0.6	0.0	0.0	1,454.0	200.7	14.3
June	273	16.3	9.4	6.5	32	2.0	0.0	0.0	1,454.7	208.5	7.8
July	443	27.3	11.1	7.9	112	6.9	1.6	0.0	1,455.6	219.4	10.9
Aug.	162	10.0	9.5	7.0	89	5.5	0.0	0.0	1,455.4	216.9	-2.5
Sept.	124	7.4	7.6	5.5	21	1.3	0.0	0.0	1,455.5	217.5	0.6
Oct.	97	6.0	4.9	3.6	10	0.6	0.0	0.0	1,455.5	219.3	1.8
Nov.	109	6.5	2.6	1.9	15	0.9	0.0	0.0	1,455.8	223.0	3.7
Dec.	88	5.4	1.3	1.0	13	0.8	19.5	0.0	1,454.6	207.1	-15.9
Total		**145.3**	**64.7**	**44.7**		**20.9**	**21.1**	**0.0**			**58.6**
Reasonable Maximum Inflow Conditions											
Jan.	305	18.8	0.9	0.5	3	0.2	0.0	0.0	1,450.9	166.6	18.1
Feb.	456	25.4	1.2	0.7	4	0.2	0.0	0.0	1,453.2	191.1	24.5
Mar.	862	53.1	2.2	1.5	5	0.3	32.8	0.0	1,454.8	209.6	18.5
Apr.	899	53.6	5.6	4.0	5	0.3	39.5	0.0	1,455.6	219.4	9.8
May	1037	63.9	6.9	5.1	5	0.3	58.5	0.0	1,455.6	219.4	0.0
June	882	52.6	8.6	6.3	22	1.3	45.0	0.0	1,455.6	219.4	0.0
July	1433	88.3	10.1	7.4	70	4.3	76.6	0.0	1,455.6	219.4	0.0
Aug.	526	32.4	8.7	6.4	57	3.5	22.5	0.0	1,455.6	219.4	0.0
Sept.	403	24.0	7.0	5.1	12	0.7	5.4	0.0	1,456.5	232.2	12.8
Oct.	313	19.3	4.5	3.4	6	0.4	15.5	0.0	1,456.5	232.2	0.0
Nov.	354	21.1	2.4	1.8	5	0.3	19.0	0.0	1,456.5	232.2	0.0
Dec.	282	17.4	1.2	0.9	5	0.3	41.3	0.0	1,454.6	207.1	-25.1
Total		**469.9**	**59.3**	**43.1**		**12.1**	**356.1**	**0.0**			**58.6**

Table A-37.—Cedar Bluff Reservoir operation estimates – 2025

Cedar Bluff Reservoir Operation Estimates – 2025											
	Inflow		Evap.		Release Requirement		Reservoir Spill	Shortage	End Of Month Elev.	End Of Month Cont.	Reservoir Change
Month	ft^3/s	KAF	in.	KAF	ft^3/s	KAF	KAF	KAF	ft	KAF	KAF
Reasonable Minimum Inflow Conditions											
Jan.	3	0.2	1.6	0.3	0	0.0	0.0	0.0	2,122.6	66.1	-0.1
Feb.	4	0.2	1.7	0.3	0	0.0	0.0	0.0	2,122.5	66.0	-0.1
Mar.	6	0.4	3.1	0.6	0	0.0	0.0	0.0	2,122.5	65.8	-0.2
Apr.	10	0.6	7.8	1.5	0	0.0	0.0	0.0	2,122.2	64.9	-0.9
May	15	0.9	9.3	1.8	3	0.2	0.0	0.0	2,121.9	63.8	-1.1
June	15	0.9	11.5	2.2	3	0.2	0.0	0.0	2,121.5	62.3	-1.5
July	19	1.2	13.8	2.6	11	0.7	0.0	0.0	2,120.7	60.2	-2.1
Aug.	15	0.9	11.8	2.1	11	0.7	0.0	0.0	2,120.1	58.3	-1.9
Sept.	5	0.3	10.1	1.8	3	0.2	0.0	0.0	2,119.6	56.6	-1.7
Oct.	2	0.1	7.1	1.2	0	0.0	0.0	0.0	2,119.2	55.5	-1.1
Nov.	3	0.2	3.3	0.6	0	0.0	0.0	0.0	2,119.0	55.1	-0.4
Dec.	2	0.1	1.9	0.3	0	0.0	0.0	0.0	2,119.0	54.9	-0.2
Total		**6.0**	**83.0**	**15.3**		**2.0**	**0.0**	**0.0**			**-11.3**
Most Probable Inflow Conditions											
Jan.	5	0.3	1.4	0.3	0	0.0	0.0	0.0	2,122.7	66.2	0.0
Feb.	5	0.3	1.6	0.3	0	0.0	0.0	0.0	2,122.7	66.2	0.0
Mar.	11	0.7	2.8	0.5	0	0.0	0.0	0.0	2,122.7	66.4	0.2
Apr.	18	1.1	7.0	1.3	0	0.0	0.0	0.0	2,122.7	66.2	-0.2
May	26	1.6	8.3	1.6	2	0.1	0.0	0.0	2,122.6	66.1	-0.1
June	29	1.7	10.3	2.0	2	0.1	0.0	0.0	2,122.5	65.7	-0.4
July	36	2.2	12.4	2.4	10	0.6	0.0	0.0	2,122.2	64.9	-0.8
Aug.	24	1.5	10.6	2.0	6	0.4	0.0	0.0	2,121.9	64.0	-0.9
Sept.	10	0.6	9.1	1.7	2	0.1	0.0	0.0	2,121.6	62.8	-1.2
Oct.	5	0.3	6.4	1.2	0	0.0	0.0	0.0	2,121.3	61.9	-0.9
Nov.	5	0.3	3.0	0.6	0	0.0	0.0	0.0	2,121.2	61.6	-0.3
Dec.	5	0.3	1.7	0.3	0	0.0	0.0	0.0	2,121.2	61.6	0.0
Total		**10.9**	**74.6**	**14.2**		**1.3**	**0.0**	**0.0**			**-4.6**
Reasonable Maximum Inflow Conditions											
Jan.	11	0.7	1.3	0.3	0	0.0	0.0	0.0	2,122.7	66.6	0.4
Feb.	16	0.9	1.4	0.3	0	0.0	0.0	0.0	2,122.9	67.2	0.6
Mar.	28	1.7	2.5	0.5	0	0.0	0.0	0.0	2,123.3	68.4	1.2
Apr.	45	2.7	6.2	1.2	0	0.0	0.0	0.0	2,123.8	69.9	1.5
May	67	4.1	7.4	1.5	3	0.2	0.0	0.0	2,124.4	72.3	2.4
June	70	4.2	9.1	1.9	3	0.2	0.0	0.0	2,125.0	74.4	2.1
July	91	5.6	11.0	2.3	3	0.2	0.0	0.0	2,125.9	77.5	3.1
Aug.	63	3.9	9.4	2.0	0	0.0	0.0	0.0	2,126.4	79.4	1.9
Sept.	25	1.5	8.1	1.8	0	0.0	0.0	0.0	2,126.3	79.1	-0.3
Oct.	10	0.6	5.7	1.2	0	0.0	0.0	0.0	2,126.1	78.5	-0.6
Nov.	15	0.9	2.7	0.6	0	0.0	0.0	0.0	2,126.2	78.8	0.3
Dec.	10	0.6	1.5	0.3	0	0.0	0.0	0.0	2,126.3	79.1	0.3
Total		**27.4**	**66.3**	**13.9**		**0.6**	**0.0**	**0.0**			**12.9**

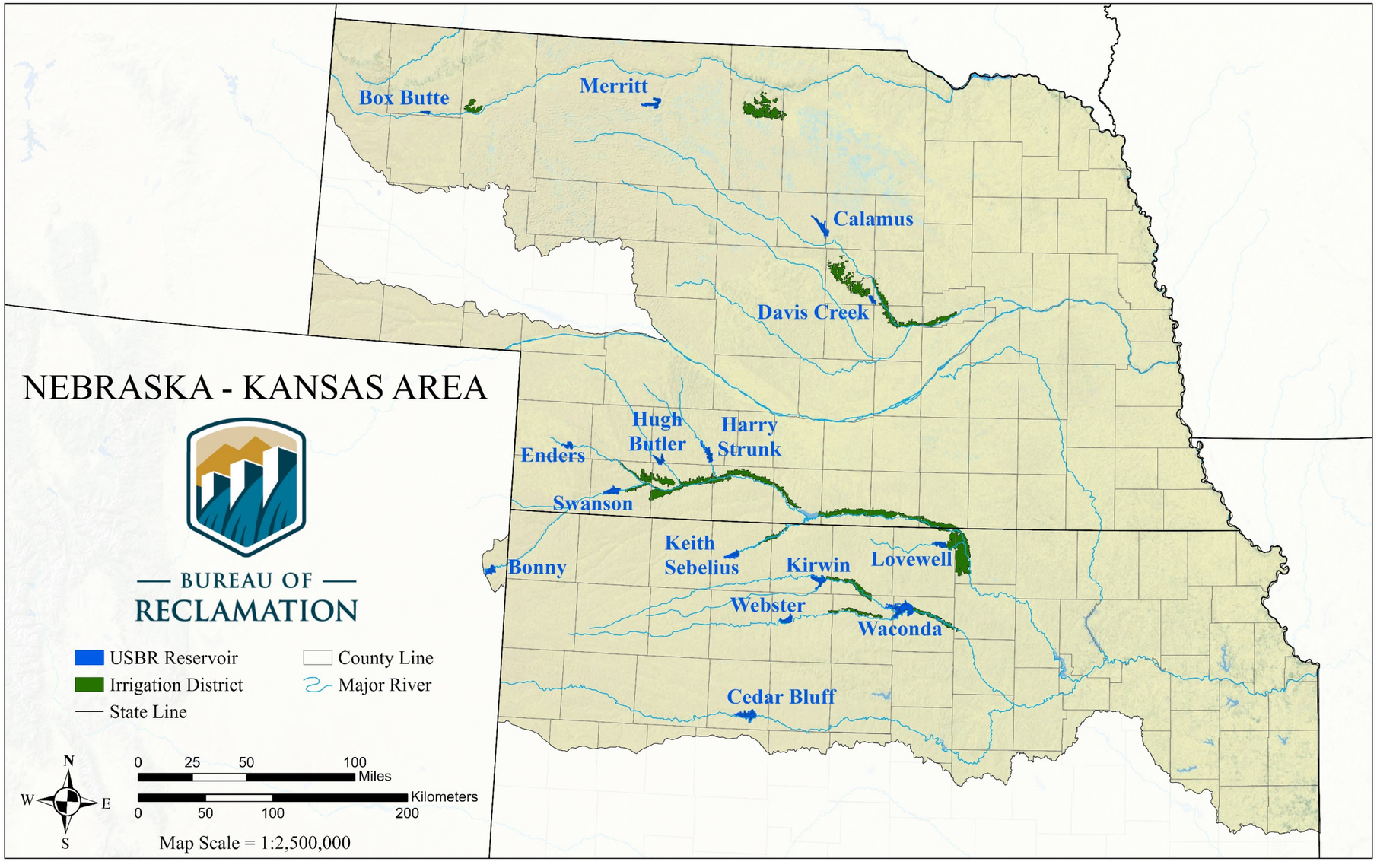

Figure A-1.—Map showing Nebraska-Kansas Area Office service area along with state lines, major rivers, reservoir locations, irrigation districts, and county boundaries.