



— BUREAU OF —  
RECLAMATION

Annual Operating Plans

# Summary of Operations for Water Year 2019 for North Platte River Basin Reservoirs

Seminole, Kortez, Pathfinder,  
Alcova, Gray Reef, Glendo,  
Guernsey, and Inland Lakes

Seminole Dam, Wyoming

**Wyoming Area Office**  
**Missouri Basin Region**

## **Mission Statements**

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

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

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# Preface

This report documents the operation of all Bureau of Reclamation (Reclamation) facilities in the North Platte River Drainage Basin above and including Guernsey Dam and the four Inland Lakes near Scottsbluff, Nebraska. This area of the North Platte River Drainage Basin is simply referred to in this report as the Basin.

References to average in this document will refer to the average of the historical record for the years 1989-2018, except for water year (WY) 2020 information which uses the years 1990-2019. In each coming year this period will be advanced by one year to maintain a running 30-year average.

# Introduction

The System of dams, reservoirs, and powerplants on the North Platte River (referred to as the "System" in this text) is monitored and in most cases operated and managed from the Wyoming Area Office in Mills, Wyoming. The operation and management of the System is aided by the use of a Programmable Master Supervisory Control, computerized accounting processes, an extensive network of Hydromet stations, control crest measurement weirs at gaging stations, SNOw TELelemetry (SNOTEL) stations, and a snowmelt runoff forecasting procedure used by the Water Management Branch. The System consists of a number of individual water resource projects that were planned and constructed by Reclamation. The individual projects and features are operated as an integrated system to achieve efficiencies that increase multipurpose benefits. The drainage basin which affects the System covers an area from northern Colorado to southeastern Wyoming, encompassing 16,224 square miles. Storage reservoirs in the System include four off stream reservoirs known as the Inland Lakes in western Nebraska as shown in Figure 21.

Approximately 70 percent to 80 percent of the annual North Platte River streamflow above Seminoe Dam occurs from snowmelt runoff during the April-July period. Primary water demand is irrigation, and the period of delivery of irrigation water normally extends from May through September. Figure 20 represents historical watershed runoff above Pathfinder Reservoir from 1906 through 2019. The System furnishes irrigation water to over 440,000 acres of land in Wyoming and Nebraska.

The System includes the Kendrick Project (formerly Casper-Alcova) in Wyoming; with major features of the project being Seminoe Dam and Powerplant, Alcova Dam and Powerplant, and Casper Canal. Kendrick Project lands lie on the northwest side of the North Platte River between Alcova Reservoir and Casper, Wyoming. The North Platte Project in Wyoming and Nebraska consists of Pathfinder Dam and Reservoir; Guernsey Dam, Reservoir and Powerplant; Whalen Dam; Northport, Fort Laramie, and Interstate canals; and four off stream inland reservoirs on the Interstate Canal. The Kortes Unit of the Pick-Sloan Missouri Basin Program (PS-MBP) consists of Kortes Dam, Reservoir, and Powerplant, in a narrow gorge of the North Platte River, 2 miles below Seminoe Dam. The Glendo Unit of the PS-MBP is a multiple-purpose natural resource development. It consists of Glendo Dam, Reservoir, and Powerplant; Fremont Canyon Powerplant; and Gray Reef Dam and Reservoir which is a re-regulating reservoir immediately downstream of Alcova Dam.

Major contributing rivers of the water supply in the System are the North Platte River in Colorado, the Medicine Bow River, and Sweetwater River in Wyoming.

The System has seven main stem reservoirs, six of which have powerplants with generating capacities totaling 239,200 kilowatts (kw). Table 12 depicts a breakdown of generating units and their capacity for each North Platte Powerplant. Table 1 below depicts North Platte River Reservoir Data.

The Department of Energy, by Executive Order dated October 1, 1977, assumed the responsibility of marketing power from Federal resources and operation and maintenance of federal transmission facilities.

Western Area Power Administration (Western) of the Department of Energy, headquartered in Lakewood, Colorado, now operates and maintains the nearly 3,500 miles of interconnected electrical transmission lines within the System. The power generating facilities are also interconnected with other federal, public and private power facilities. Power from Reclamation Powerplants is marketed by Western.

**Table 1** North Platte River Reservoir Data

<b>Reservoir (Date Completed)</b>	<b>Dead Storage <sup>1</sup> Acre-feet (AF)</b>	<b>Active Storage <sup>2</sup> (AF)</b>	<b>Total Storage (AF)</b>	<b>Minimum Storage (AF)</b>	<b>Minimum Elevation (feet)</b>
Seminoe (1939)	556	1,016,717	1,017,273	31,670 <sup>4</sup>	6,239.00 <sup>4</sup>
Kortes (1951)	151	4,588	4,739	1,666 <sup>4</sup>	6,092.00 <sup>4</sup>
Pathfinder (1909)	7	1,069,993	1,070,000	31,405 <sup>4</sup>	5,746.00 <sup>4</sup>
Alcova (1938)	91	184,314	184,405	137,610 <sup>5</sup>	5,479.50 <sup>5</sup>
Gray Reef (1961)	56	1,744	1,800	56 <sup>6</sup>	5,312.00 <sup>6</sup>
Glendo (1958)	7,010	756,029	763,039 <sup>3</sup>	51,573	4,570.00 <sup>7</sup>
Guernsey (1927)	0	45,612	45,612	0	4,370.00 <sup>8</sup>
<b>Total</b>	<b>7,871</b>	<b>3,078,997</b>	<b>3,086,868</b>	<b>253,980</b>	<b>-----</b>

<sup>1</sup> Storage capacity below elevation of lowest outlet

<sup>2</sup> Total storage minus dead storage

<sup>3</sup> Top of Conservation capacity 492,022 AF (Elevation 4,635.00 ft) with an additional 271,017 AF allocated to Flood Control (elevation 4,653.00 ft)

<sup>4</sup> Minimum water surface elevation and capacity required for power generation this level is the top of inactive capacity

<sup>5</sup> Content and minimum elevation required for power generation; however, water cannot be delivered to Casper Canal when reservoir level is below 5,487.00 ft (153,802 AF), the elevation of the Casper Canal Gate sill.

<sup>6</sup> Top of dead capacity – spillway crest

<sup>7</sup> Minimum water surface elevation for power generation

<sup>8</sup> Elevation of the North Spillway Crest



# System Planning and Control

The North Platte River storage, power generation, and water delivery facilities are operated for irrigation, hydroelectric power production, municipal, and industrial water supply. The facilities provide year-round flows in the river below each North Platte Dam except for Guernsey Dam. The facilities also provide flood control, recreation, fish and wildlife preservation. Each project of the System must be operated under the purposes for which it was authorized and constructed. The objective of an integrated system is to obtain optimum benefits from the individual projects.

The System's integrated operation is planned and coordinated by Reclamation's Wyoming Area Office in Mills, Wyoming. This office collects and analyzes information daily and makes the decisions necessary for successful operation of the System. The water management function involves coordination between Reclamation, the Department of Energy, and many other local, state, and Federal agencies. When water levels rise into the exclusive flood control pool at Glendo Reservoir, the flood control operation of Glendo Dam is directed by the U.S. Army Corps of Engineers, Omaha District in Omaha, Nebraska.

Experience has proven that optimum utilization of the available water resources in the System can be achieved only through careful budgeting of the anticipated water supply. The technical end product of this budgeting process is an Annual Operating Plan (AOP).

The System is operated on a water year basis (October 1 through September 30). Early in the water year an AOP is prepared, reviewed, and presented to the public. The AOP consists of three operation studies using reasonable minimum, reasonable maximum, and most probable inflow conditions determined from statistical analysis of historical inflow conditions. The AOP, as developed and reflected in the three operation studies, provides the flexibility to adjust operations as conditions change during the water year. Reclamation makes use of computer programs to revise and adjust the operating plan each month to reflect changing conditions. A computerized process of forecasting the anticipated water supply also aids the revision process during the months of February, March, April, and May. Figure 1 depicts North Platte Reservoirs Total Storage end of September content for water years 1912 through 2019. Table 2 depicts A Summary of Reservoir Storage Content for water year (WY) 2019 (end of month). Table 9 depicts the Actual Reservoir Operations for WY 2019.

**Table 2** Summary of Reservoir Storage Content for Water Year 2019 (End of Month)

<b>Seminole Reservoir</b>			<b>Pathfinder Reservoir</b>			<b>Alcova Reservoir<sup>3</sup></b>		
<b>Month</b>	<b>Storage</b>	<b>Record<sup>1</sup></b>	<b>Month</b>	<b>Storage</b>	<b>Record</b>	<b>Month</b>	<b>Storage</b>	<b>Record<sup>1</sup></b>
October	657,847		October	618,841		October	157,125	
November	643,806		November	620,960		November	157,577	
December	629,454		December	623,085		December	157,125	
January	617,534		January	628,426		January	157,193	
February	609,825		February	636,434		February	157,306	
March	616,040		March	642,654		March	157,849	
April	673,148		April	680,740		April	179,766	
May	721,784	8	May	833,147		May	180,816	
June	914,214	7	June	991,402		June	180,498	
July	878,021		July	1,022,464	1	July	180,181	
August	853,529	9	August	896,896	2	August	180,229	
September	822,688	8	September	844,737	4	September	180,278	

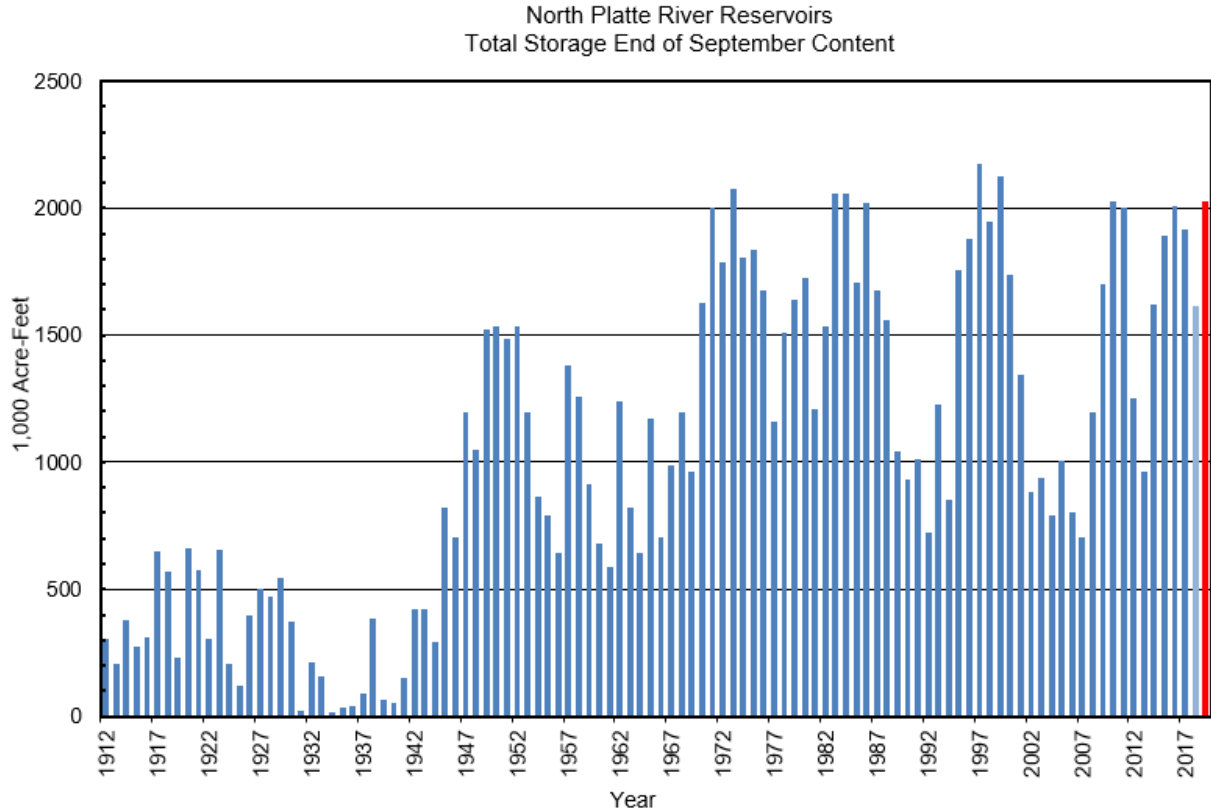
  

<b>Glendo Reservoir</b>			<b>Guernsey Reservoir</b>			<b>Total System<sup>2</sup></b>		
<b>Month</b>	<b>Storage</b>	<b>Record<sup>1</sup></b>	<b>Month</b>	<b>Storage</b>	<b>Record<sup>1</sup></b>	<b>Month</b>	<b>Storage</b>	<b>Record<sup>1</sup></b>
October	195,203	5	October	8,361	6	October	1,643,658	
November	232,085		November	10,424		November	1,671,120	
December	266,643		December	12,311		December	1,694,805	
January	302,181		January	14,303		January	1,725,981	
February	334,302		February	15,559		February	1,759,773	
March	381,695		March	17,978		March	1,822,745	
April	464,261		April	28,280		April	2,032,214	
May	515,592		May	32,297		May	2,289,665	
June	482,261		June	28,775		June	2,603,686	4
July	400,833	5	July	27,985		July	2,515,962	3
August	265,770	4	August	28,240		August	2,231,069	4
September	166,353	4	September	6,001	9	September	2,026,448	3

<sup>1</sup> Record high is the 30 year period from 1989-2018

<sup>2</sup> Total North Platte system includes storage in Seminole, Kortes, Pathfinder, Alcova, Gray Reef, Glendo and Guernsey Reservoirs

<sup>3</sup> Alcova Reservoir is normally maintained within either a winter operating range (between contents of 153,802 AF to 158,302 AF) or a summer operating range (between contents 177,070 AF to 181,943 AF)

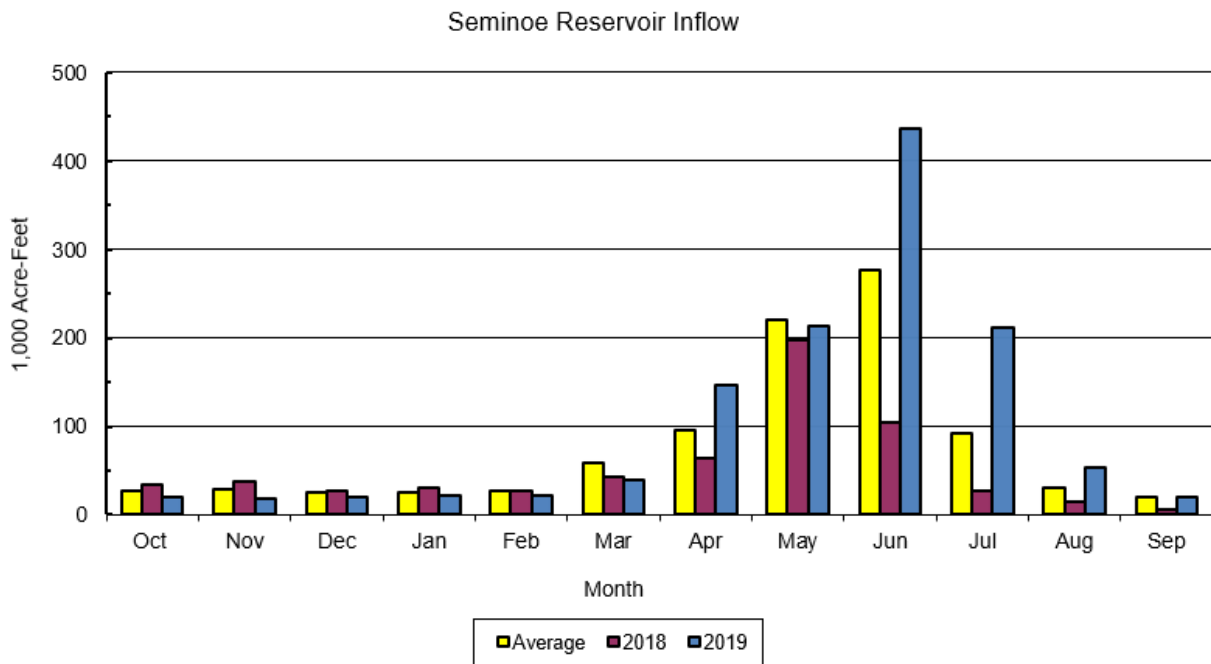


**Figure 1** North Platte River Reservoirs Total Storage End of September Content (1912-2019)

## System Operations Water Year 2019

### Seminole Reservoir Inflow

Seminole Reservoir inflows were below the 30-year average for the first half of the water year, however the remainder of the water year was near or well above average for the year. A total of 1,224,859 acre-feet (AF) or 132 percent of the 30-year average entered the system above Seminole Reservoir during the water year. The monthly inflows ranged from a high of 230 percent of average in July 2019 to a low of 63 percent in November 2018. The actual April through July inflow totaled 1,008,320 AF, which was 148 percent of the 30-year average of 683,500 AF. The Seminole computed inflow peaked for the water year on June 25, 2019, at 12,177 cubic feet per second (cfs). Figure 2 depicts a comparison of average, WY 2018 and WY 2019 monthly inflows.



**Figure 2** Seminole Reservoir Inflow

## Seminole Reservoir Storage and Releases

Seminole Dam and Reservoir on the North Platte River is the main storage facility for the Kendrick Project. Construction of the dam was completed in 1939, providing a storage capacity of 1,017,273 AF. The Powerplant contains three electrical generating units with a total capacity of 42 mega-watts (MW) at a full release capability of about 4,050 cfs. The spillway consists of a concrete-lined tunnel through the right abutment controlled by three fixed-wheel gates with a release capability of close to 48,000 cfs. Two 60-inch jet flow valves provide a low-level river outlet with a flow capacity of 3,420 cfs.

At the start of WY 2019, Seminole Reservoir had a storage content of 657,847 AF, which was 112 percent of average and 65 percent of capacity. The maximum Seminole Reservoir content was reached on July 06, 2019, at 922,083 AF. At the end of WY 2019, Seminole Reservoir storage content was 822,688 AF, which was 139 percent of average and 81 percent of capacity. See Figure 3 for a comparison of average, WY 2018 and WY 2019 monthly storage.

Releases from Seminole Dam averaged approximately 532 cfs in October 2018. The release remained at approximately 532 cfs through April 8, 2019; to a maximum of 5,742 cfs on June 26 approximately 1,000 cfs through out August and decreased to 540 cfs by September 17<sup>th</sup>. The flows remained at 540 cfs through the rest of September. Table 3 depicts a summary of Seminole Reservoir information for WY 2019.

**Table 3** Seminole Reservoir Hydrologic Data for Water Year 2019

<b>Reservoir Allocations</b>	<b>Elevation (FT)</b>	<b>Storage (AF)</b>	<b>Storage Allocation (AF)</b>
Top of Inactive and Dead	6239	31,670	31,670
Top of Active Conservation	6357	1,017,273	985,603
Crest of Dam (without Camber)	6361		

<b>Storage-Elevation Data</b>	<b>Elevation (FT)</b>	<b>Storage (AF)</b>	<b>Date</b>
Beginning of water year	6337.12	672,711	30-Sep-18 <sup>2</sup>
End of water year	6346.6	822,688	30-Sep-19
Annual Low	6332.52	608,346	7-Mar-19
Historic Low <sup>1</sup>	6253.3	56,390	20-Apr-61
Annual High	6352.13	922,083	6-Jul-19
Historic High <sup>1</sup>	6359.29	1,073,050	20-Jun-49

<b>Inflow-Outflow Data</b>	<b>Inflow <sup>3</sup></b>	<b>Date</b>	<b>Outflow</b>	<b>Date</b>
Annual Total (AF)	1,224.86	Oct. 18'– Sep. 19'	1,029,625	Oct. 18'– Sep. 19'
Daily Peak (CFS)	12,177	25-Jun-19	5,742	27-Jun-19
Daily Minimum (CFS)	26	2-Oct-18	474	14-Jan-19

<b>Month</b>	<b>Inflow</b>		<b>Outflow</b>		<b>Content <sup>6</sup></b>	
	<b>KAF</b>	<b>percent of Avg. <sup>5</sup></b>	<b>KAF</b>	<b>percent of Avg. <sup>5</sup></b>	<b>KAF</b>	<b>percent of Avg. <sup>5</sup></b>
October	19.3	70	32.7	89	657.8	112
November	18.3	63	31.9	83	643.8	112
December	20.7	81	33	78	629.5	113
January	21.6	85	32.9	78	617.5	115
February	22.5	84	29.8	68	609.8	117
March	40.2	69	33	56	616	119
April	147.3	154	87.1	92	673.1	130
May	213.1	97	161	136	721.8	118
June	437.1	158	237.5	147	914.2	127
July	210.9	230	237.2	199	878	128
August	53	175	68.4	83	853.5	136
September	20.9	106	45.3	93	822.7	139
Annual	1,224.90	132	722.8	81		

<sup>1</sup> The daily records for this table are only available from water year 1946.

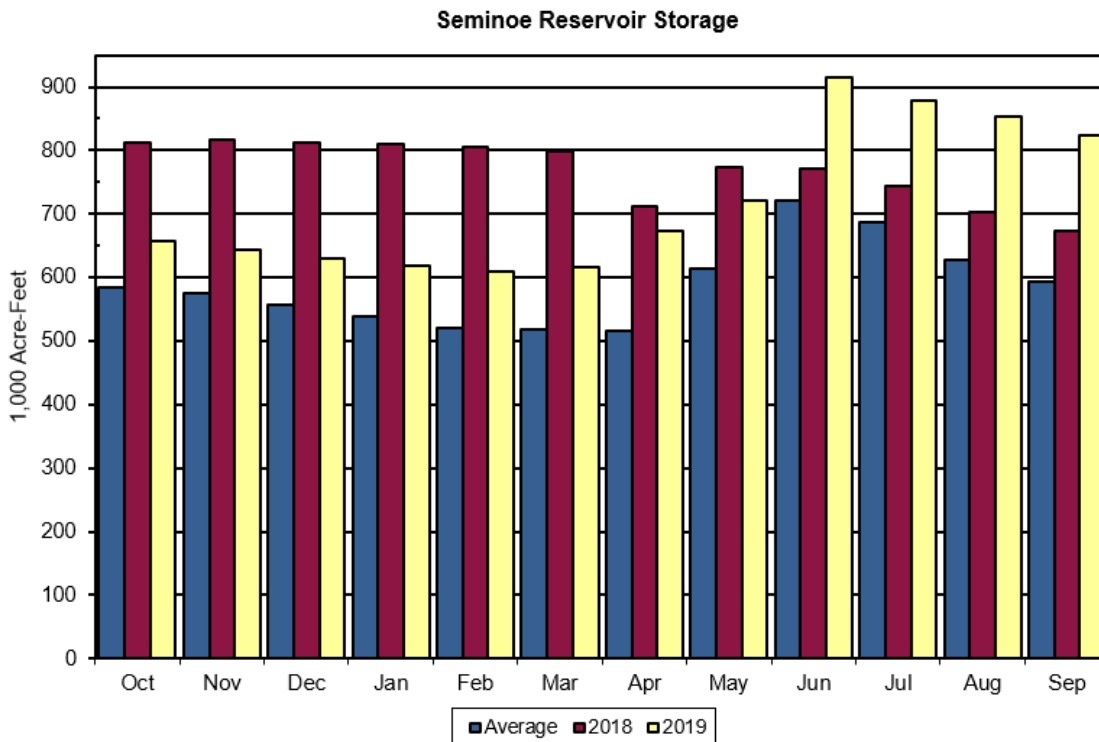
<sup>2</sup> Represents 0001 hours on October 1

<sup>3</sup> Inflows are a computed number.

<sup>4</sup> Daily peak and minimum are releases to the river.

<sup>5</sup> The 30 year average is the period (1989-2018)

<sup>6</sup> End of month



**Figure 3** Seminoe Reservoir Storage

## Kortes Reservoir Storage and Releases

Completed in 1951, Kortes Dam, Reservoir, and Powerplant of the Kortes Unit (Pick-Sloan Missouri Basin Project) are located about 2 miles below Seminoe Dam. It was the first unit initiated by the Bureau of Reclamation under the Missouri River Basin Project. Kortes Reservoir provides a total storage capacity of 4,739 AF at elevation 6,142.0 feet, the level of the spillway crest. Kortes Powerplant has three electrical generating units with a total capacity of 40 MW and a release capability of approximately 2,700 cfs. Water released from Seminoe Dam to Pathfinder Reservoir passes through the Kortes turbines to generate power. Maximum benefits are obtained when Kortes Reservoir remains full and the power releases are coordinated with those from Seminoe Powerplant to maintain a full reservoir.

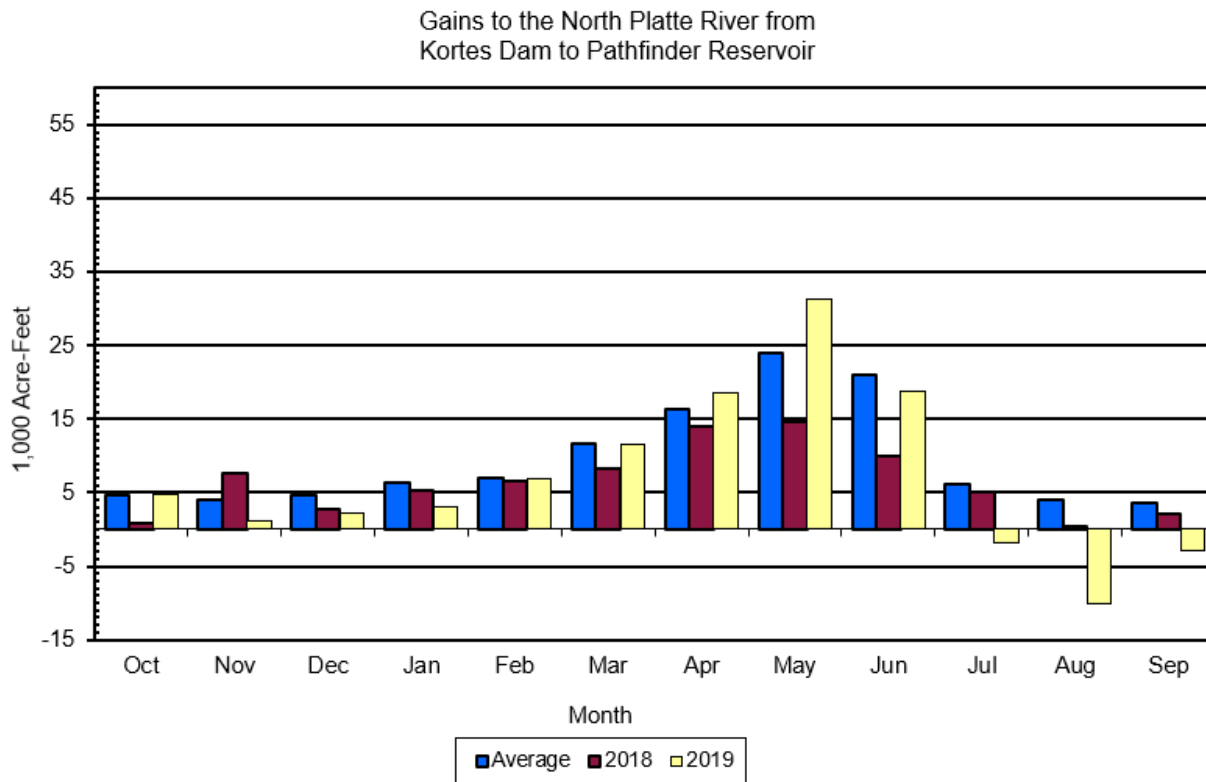
The spillway on the right abutment consists of an uncontrolled crest with a concrete-lined tunnel and has a capacity of 50,000 cfs.

Senate Bill 2553 which was passed in the 90<sup>th</sup> Congress authorized the modification of the operation of Kortes Dam and Powerplant to provide a minimum streamflow of 500 cfs in the North Platte River between Kortes Reservoir and the normal headwaters of Pathfinder Reservoir. The minimum flow permits maintenance of a fishery in a stretch of the North Platte River commonly referred to as the "Miracle Mile".

Kortes releases averaged approximately 532 cfs in October 2018 and increased to approximately 1,800 cfs in early April 2019 and remained there until the first of May. An increase was made in early May to approximately 2,600 cfs and later increased in June during the spring runoff to a peak of approximately 5,700 cfs. The Kortes Dam release peaked at 5,741 cfs on June 27, 2019. Releases were decreased to approximately 2,800 cfs by mid July. Early August releases were cut to 1,000 cfs and remained there until mid August. Releases were decreased to approximately 800 cfs on September 12, 2019 and decreased to the winter flow of 540 cfs by mid September.

## Gains to the North Platte River from Kortes Dam to Pathfinder Dam

Kortes Dam to Pathfinder Dam river gains were below average for 7 months of WY 2019. The Kortes Dam to Pathfinder Dam river gains ranged from 131 percent of average in May 2019 to 244 percent in August WY 2019. The April through July river gains were 66,817 AF, which is 99 percent of the 30-year average of 67,400 AF. Figure 4 depicts a comparison of average, WY 2018 and WY 2019 monthly river gains.



**Figure 4** Gains to the North Platte River from Kortes Dam to Pathfinder Reservoir

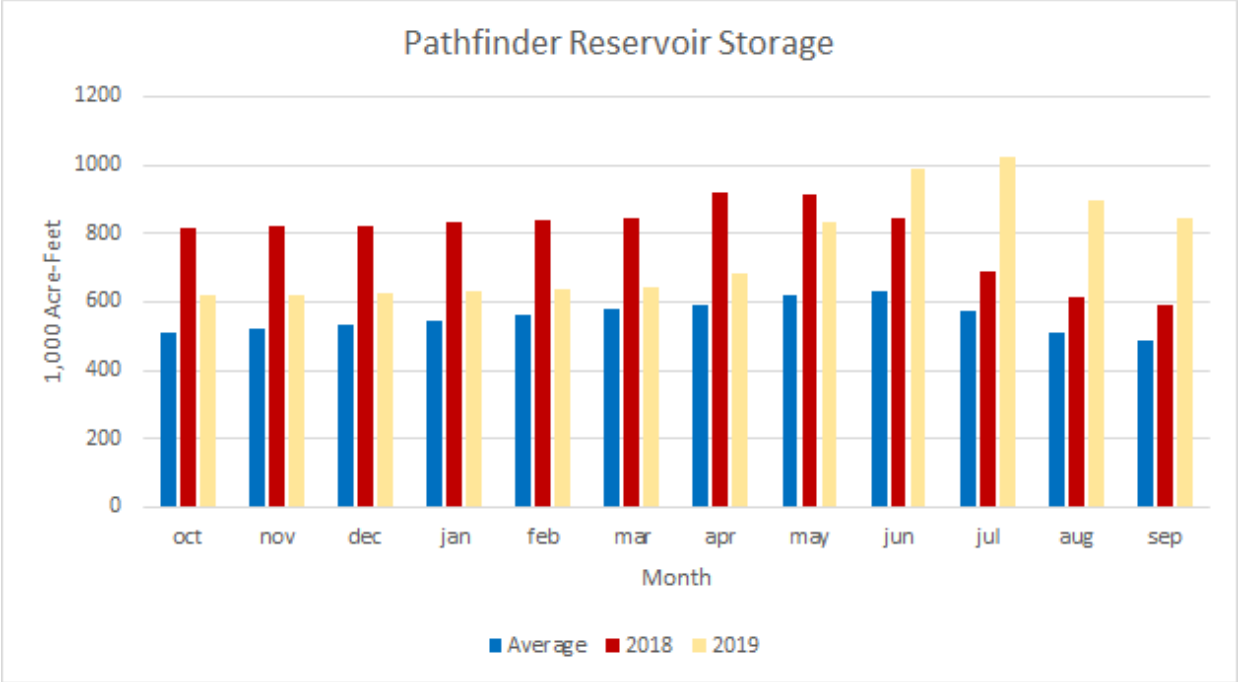
## Pathfinder Reservoir Storage and Releases

Pathfinder Dam and Reservoir, a major storage facility of the North Platte Project, has a total capacity of 1,070,000 AF at elevation 5,852.49 feet. Construction of the dam was completed in 1909. Operationally, this structure is a bottleneck in the System with its maximum non-spillway release capability of approximately 6,000 cfs. The rated capacity of the left abutment outlet works through the two 60-inch jet flow gates is approximately 3,000 cfs at elevation 5,852.49 feet. The flow capacity range of the 30-inch jet flow gate is from approximately 50 to 450 cfs. Depending on the elevation of the reservoir, as much as 3,080 cfs can be released through the Fremont Canyon Power conduit and discharged from the Fremont Canyon turbines at the Powerplant 3 miles downstream. Reconditioning of Unit 2 of the Fremont Canyon Powerplant was completed in August 2012. Reconditioning of Unit 1 was completed late July 2013. The 33.4 MW nameplate rating of the two units has not changed. Total rating of these two units is 66.8 MW.

Reconstruction of the Pathfinder spillway was completed in 2012. The spillway crest was raised approximately 2.4 feet to elevation 5,852.49 feet. The crest of the uncontrolled spillway on the left abutment of the dam was reconfigured from a flat-crested natural rock weir to an ogee-crested concrete weir. A spill occurs any time the reservoir water surface exceeds 5,852.49 feet. The calculated discharge capacity of the spillway is 32,449 cfs at reservoir elevation 5,858.10 feet.

At the start of WY 2019, storage in Pathfinder Reservoir was 618,841 AF, which was 112 percent of average and 58 percent of capacity. Pathfinder storage was above the 30-year average for WY 2019 (See Figure 5). The maximum Pathfinder Reservoir content for the water year peaked on July 15, 2019, at 1,049,045 AF which is 98 percent of capacity. The water year ended with 844,737 AF of water in storage in Pathfinder Reservoir, which was 173 percent of average and 79 percent of capacity. An average release of 138 cfs of water from Pathfinder Reservoir during October was maintained during the gradual drawdown of Alcova Reservoir to its winter operating range. At the request of the Wyoming Game and Fish Department a year-round flow of 75 cfs was provided to the river below Pathfinder Dam. The 75 cfs minimum flow is provided through the 30-inch Jet-Flow valve except when the 60-inch Jet-Flow valve is needed to supplement Fremont Canyon releases to make required irrigation deliveries. The river below Pathfinder Dam reached a maximum flow of 1,048 cfs on July 23, 2019. Table 4 depicts a summary of Pathfinder Reservoir storage for WY 2019.





**Figure 5** Pathfinder Reservoir Storage

**Table 4** Pathfinder Reservoir Hydrologic Data for Water Year 2019

Reservoir Allocations	Elevation (FT)	Storage (AF)	Storage Allocation (AF)
Top of Inactive	5,746.00	31,405	31,405
Top of Active Conservation	5,852.49	1,070,000	1,038,595
Crest of Dam (without Camber)	5,858.10		

Storage-Elevation Data	Elevation (FT)	Storage (AF)	Date
Beginning of water year	5,826.89	591,731	Oct 1, 2018 <sup>3</sup>
End of water year	5,841.81	844,737	30-Sep-19
Annual Low	5,826.93	592,312	1-Oct-18
Historic Low <sup>2, 3</sup>	5,690.00	0	9-Sep-58
Annual High	5,851.56	1,049,045	15-Jul-19
Historic High <sup>1</sup>	5,853.49	1,093,275	2-Jun-16

<sup>1</sup> Daily records for this table are only available from water year 1946

<sup>2</sup> From September 1958 through January 1959, Pathfinder Reservoir was drained for construction of Fremont Canyon tunnel.

<sup>3</sup> Represents 0001 hours on October 1.

Inflow-Outflow Data	Inflow	Date	Outflow	Date
Annual Total (AF)	1,112,707	Oct. 2018 – Sep. 2019	804,813	Oct. 2018 – Sep. 2019
Daily Peak (CFS)	6,035	3-Jul-19	3,471	23-Jul-19
Daily Minimum (CFS)	23	29-Nov-18	0	6-Jan-19

<sup>4</sup> At the request of the Wyoming Game and Fish Department a yearly, minimum flow of 75 cfs will be provided through the Pathfinder Reservoir 30-inch Jet-Flow Valve to the river below Pathfinder Dam. Spillway and additional releases were made in WY 2019 that resulted in a peak flow of 1,048 cfs.

Month	Gain from Kortes		Inflow <sup>6</sup>		Outflow		Content <sup>8</sup>	
	KAF	percent of Avg. <sup>5</sup>	KAF	percent of Avg. <sup>5</sup>	KAF	percent of Avg. <sup>5</sup>	KAF	percent of Avg. <sup>5</sup>
October	4.7	102	37.4	92	8.5	61	618.8	121
November	1.1	27	33.0	79	30.3	92	621.0	120
December	2.2	47	35.1	75	30.8	92	623.1	117
January	3.1	50	36.0	75	30.0	90	628.4	115
February	6.8	97	36.6	72	28.0	91	636.4	113
March	11.5	99	44.4	64	37.0	69	642.7	111
April	18.6	114	105.7	95	64.2	69	680.7	115
May	31.2	131	192.2	135	34.5	31	833.1	135
June	18.7	89	255.8	140	88.5	54	991.4	158
July	-1.7	<sup>7</sup>	235.7	188	193.0	111	1,022.5	179
August	-10.0	<sup>7</sup>	58.3	67	173.4	124	896.9	176
September	-2.8	<sup>7</sup>	42.4	80	86.5	127	844.7	173
Annual	66.8	59	1112.7	111	804.8	85		

<sup>5</sup> 30 year average is the period (1989-2018)

<sup>6</sup> The inflow includes the gain from Kortes Dam to Pathfinder Dam.

<sup>7</sup> Represents a negative number that makes the percentage meaningless.

<sup>8</sup> End of Month

## **Alcova and Gray Reef Reservoirs Storage and Releases**

Alcova Dam and Reservoir is part of the Kendrick Project. The dam serves as a diversion dam for the Casper Canal and the reservoir as a forebay for the Alcova Powerplant. The dam, located about 10 miles downstream from Pathfinder Dam, was completed in 1938. Reservoir storage capacity is about 184,405 AF at elevation 5,500 feet, of which only the top 30,603 AF is active capacity available for irrigation of the Kendrick Project. The Powerplant consists of two electrical generating units with a total installed capacity of 36 MW at a full release capability of about 4,100 cfs. The spillway is a concrete lined open channel in the left abutment of the dam controlled by three 25 by 40-foot gates with a capacity of 55,000 cfs at a reservoir level of 5,500 feet. The reservoir is typically operated during the irrigation season, May through September, at a level of 5,498 feet and at 5,488 feet for the remainder of the year. A higher operating level is maintained during the summer months to provide adequate head on the Casper Canal, while the lower winter operating level reduces the potential for ice damage to the canal gate.

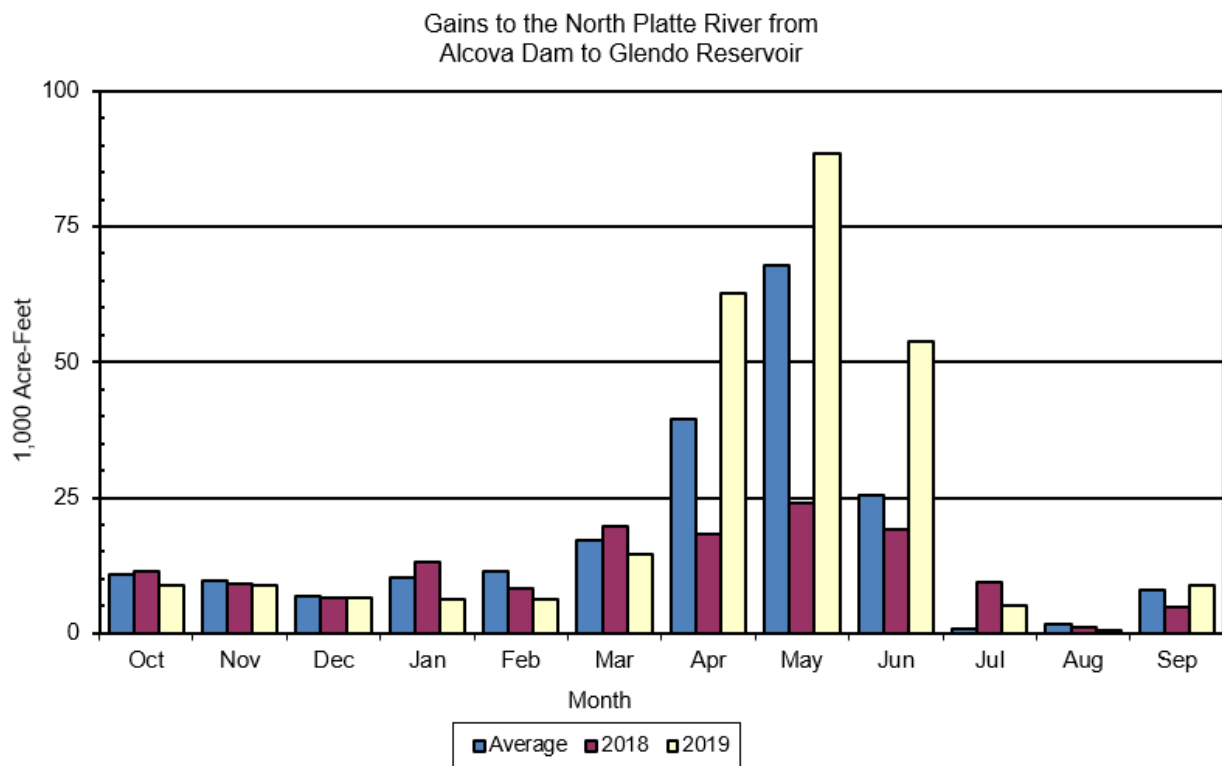
The annual drawdown of Alcova Reservoir began on October 1, 2018, and continued through October 31, 2018, when the reservoir reached its normal winter operating range of 5,488 plus one foot. The refill of Alcova Reservoir was initiated on April 1, 2019. The water surface elevation was raised to 5,498 feet on April 30, 2019, and the reservoir was maintained within one foot of elevation 5,498 feet throughout the irrigation season.

Gray Reef Dam and Reservoir is part of the Glendo Unit, Oregon Trail Division, Pick-Sloan Missouri Basin Program. The dam which was completed in 1961 is a three-zoned rock and earth fill structure located about 2.5 miles below Alcova Dam. The reservoir has an active capacity of 1,744 AF. Gray Reef Reservoir is operated to re-regulate widely fluctuating water releases from the Alcova Powerplant, and provide stable flow for irrigation, municipal, industrial, and fish and wildlife interests along the 147 miles of river between Alcova and Glendo Dams.

The Gray Reef releases were maintained at 500 cfs from October 1, 2018 through March 28, 2019. At the request of the Wyoming Game and Fish Department, a series of flushing flows were initiated on March 29 to April 7, 2019 for the purpose of flushing silt from spawning gravels used by trout. The flows were varied each day from 500 cfs to 2,000 cfs on the first day to clear potential ice problems, then 500 cfs to 4,000 for the remaining days. At the completion of the flushing flows, releases from Gray Reef were brought down to 500 cfs until June 5, 2019. Releases for the remainder of the water year were adjusted to meet irrigation demands below Guernsey Reservoir. The largest daily release of water for the water year occurred on August 10, 2019, at 3,005 cfs.

## Gains to the North Platte River from Alcova Dam to Glendo Reservoir

River gains from Alcova Dam to Glendo Reservoir were below average for 7 months of WY-2019. The Alcova Dam to Glendo Reservoir river gains ranged from a high of 567 percent in July 2019 to a low of 24 percent in August 2019. The 30-year average gain in July is negative, making a comparison to the July 2019 gain meaningless. The April through July gain was 71,031 AF, which was 53 percent of average. The maximum computed daily river gain of 1,024 cfs occurred on May 30, 2019, and the daily computed Glendo Reservoir inflow peaked on July 17, 2019, at 4,287 cfs. Figure 6 depicts a comparison of average, WY 2018 and WY 2019 monthly river gains.



**Figure 6** Gains to the North Platte River from Alcova Dam to Glendo Reservoir

## Glendo Reservoir Storage and Releases

Glendo Dam and Reservoir is the only storage facility for the Glendo Unit. The reservoir has a storage capacity of 763,039 AF, including 271,017 AF allocated to flood control. Glendo Powerplant consists of two electrical generating units, with a total installed capacity of 38 MW. With both generating units operating at capacity and the reservoir water surface at elevation 4,635.0 feet, approximately 3,400 cfs can be released through Glendo Powerplant. The reinforced concrete spillway has an ungated ogee crest. The spillway capacity at elevation 4,669.0 feet, (6 feet below the crest of the dam), is 10,335 cfs.

The outlet works from Glendo Dam consist of the primary outlet works which discharge at the Powerplant, and the low-flow outlet which discharges to the river immediately below the dam. The three primary outlet gates can release a combined discharge of 13,000 cfs with the Powerplant shut down. During normal operation, when the reservoir elevation is below the top of conservation storage (4,635 feet), outlet works discharges should typically remain below 5,500 cfs. This precautionary practice is to minimize the potential for damage to the stilling basin and training walls. The low-flow outlet works are operated to maintain a continuous release of approximately 25 cfs. This provides a reliable water source for the downstream wetland area which results in associated fish and wildlife benefits. In the summer of 2015 the dam was raised 3 feet with a parapet wall, and the dikes on the south side of the reservoir were raised 6 feet.

Glendo Reservoir storage was 158,013 AF at the beginning of WY 2019, which was 123 percent of average and 32 percent of the active conservation of 492,022 AF. Water releases from Glendo Reservoir were initiated on April 16, 2019, in order to move water to the Inland Lakes. The reservoir reached a maximum storage for the year of 521,203 AF (elevation 4,637.35 feet) on June 4, 2019. At the end of the water year, Glendo Reservoir contained 166,353 AF of water (water surface elevation 4,618.50 feet) which was 130 percent of average and 34 percent of top of active conservation. Figure 7 depicts WY 2018 and WY 2019 end of month reservoir storage compared to average. Table 5 depicts a summary of Glendo Reservoir information for WY 2019.

**Table 5** Glendo Reservoir Hydrologic Data for Water Year 2019

<b>Reservoir Allocations</b>	<b>Elevation (FT)</b>	<b>Storage (AF)</b>	<b>Storage Allocation (AF)</b>
Top of Inactive	4,570.00	51,573	51,573
Top of Active Conservation	4,635.00	492,022	440,449
Top of Exclusive Flood Control	4,653.00	763,039	271,017
Maximum water surface(surcharge)	4,669.00	1,092,290	329,251
Crest of Dam (without Camber)	4,675.00	-----	-----

<b>Storage-Elevation Data</b>	<b>Elevation (FT)</b>	<b>Storage (AF)</b>	<b>Date</b>
Beginning of water year	4,596.05	158,013	Oct 1, 2018 <sup>1</sup>
End of water year	4,597.48	166,353	Sep 30, 2019
Annual Low	4,596.26	159,220	Oct 1, 2018
Historic Low	4,548.10	15,140	Sep 28, 1966
Annual High	4,637.35	521,203	June 4, 2019
Historic High	4,650.94	758,830	May 28, 1973

<b>Inflow-Outflow Data</b>	<b>Inflow</b>	<b>Date</b>	<b>Outflow <sup>2</sup></b>	<b>Date</b>
Annual Total (AF)	1,033,150	Oct. 2018 – Sep. 2019	999,578	Oct. 2018 – Sep. 2019
Daily Peak (CFS)	5,156	May 29, 2019	7,501	Jul 20, 2019
Daily Minimum (CFS)	79	Mar 4, 2019	1 <sup>4</sup>	Feb 7, 2019
Peak Bypass Release (CFS)	----	----	4,406	Jul 12, 2019
Total Bypass Release (AF)	----	----	201,322 <sup>3</sup>	Oct, 2018 – Sep, 2019

<b>Month</b>	<b>Gain from Alcova</b>		<b>Inflow <sup>7</sup></b>		<b>Outflow</b>		<b>Content <sup>8</sup></b>	
	<b>KAF</b>	<b>percent of Avg. <sup>5</sup></b>	<b>KAF</b>	<b>percent of Avg. <sup>5</sup></b>	<b>KAF</b>	<b>percent of Avg. <sup>5</sup></b>	<b>KAF</b>	<b>percent of Avg. <sup>5</sup></b>
October	9	83	40	79	2	1036	195.2	113
November	8.7	90	39	90	1.7	1206	232.1	108
December	6.7	99	36.4	91	1.6	986	266.6	105
January	6.4	63	37.8	88	1.7	1026	302.2	103
February	6.3	55	33.7	82	1.1	586	334.3	100
March	14.6	85	49.5	74	1.7	106	381.7	99
April	62.7	158	104.2	100	19.1	39	464.3	106
May	88.3	130	124.9	76	71.1	58	515.6	109
June	53.9	212	133	79	161.1	98	482.3	102
July	5.2	578	177.4	113	253.3	82	400.8	127
August	0.4	24	167.4	130	298.3	104	265.8	173
September	8.8	110	89.9	127	186.9	198	166.4	130
Annual	270	157	1,033.20	96	999.6	95	----	----

<sup>1</sup> Represents 0001 hours on October 1.

<sup>2</sup> Includes the average daily release of approximately 25 cfs from the low flow outlet works for April-September.

<sup>3</sup> A low flow outlet works was completed in 1993 to allow for a release of 25 cfs.

<sup>4</sup> The low flow out of Glendo Reservoir is due to the work being done on the spillway gates at Guernsey Dam.

<sup>4</sup> Represents a negative number that makes the percentage meaningless.

<sup>5</sup> 30 year average is the period (1989-2018)

<sup>6</sup> 25-year average is the period (1994-2018) in 1993 a low flow valve was installed at Glendo Dam which allowed the release of 25 cfs during the non irrigation season. Therefore, a 25 year average is used for the months of October through March.

<sup>7</sup> Inflow include the gain from Alcova Dam to Glendo Dam.

<sup>8</sup> End of month



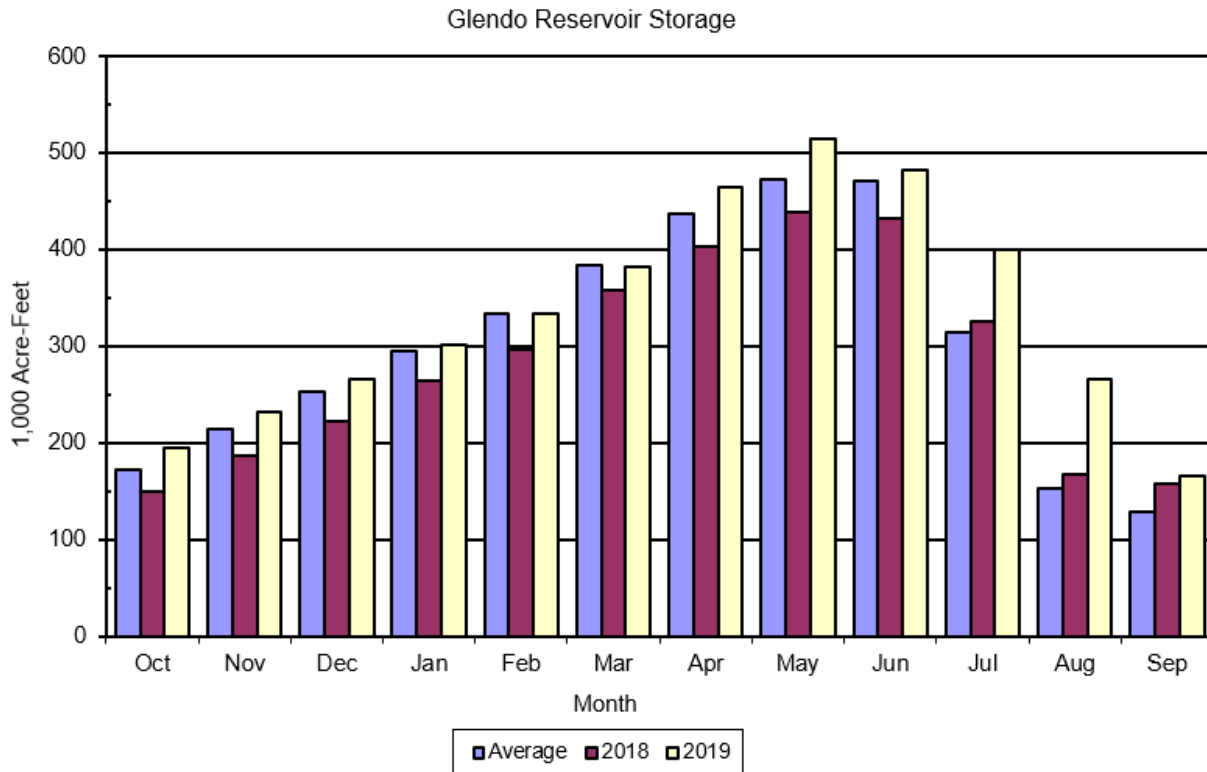
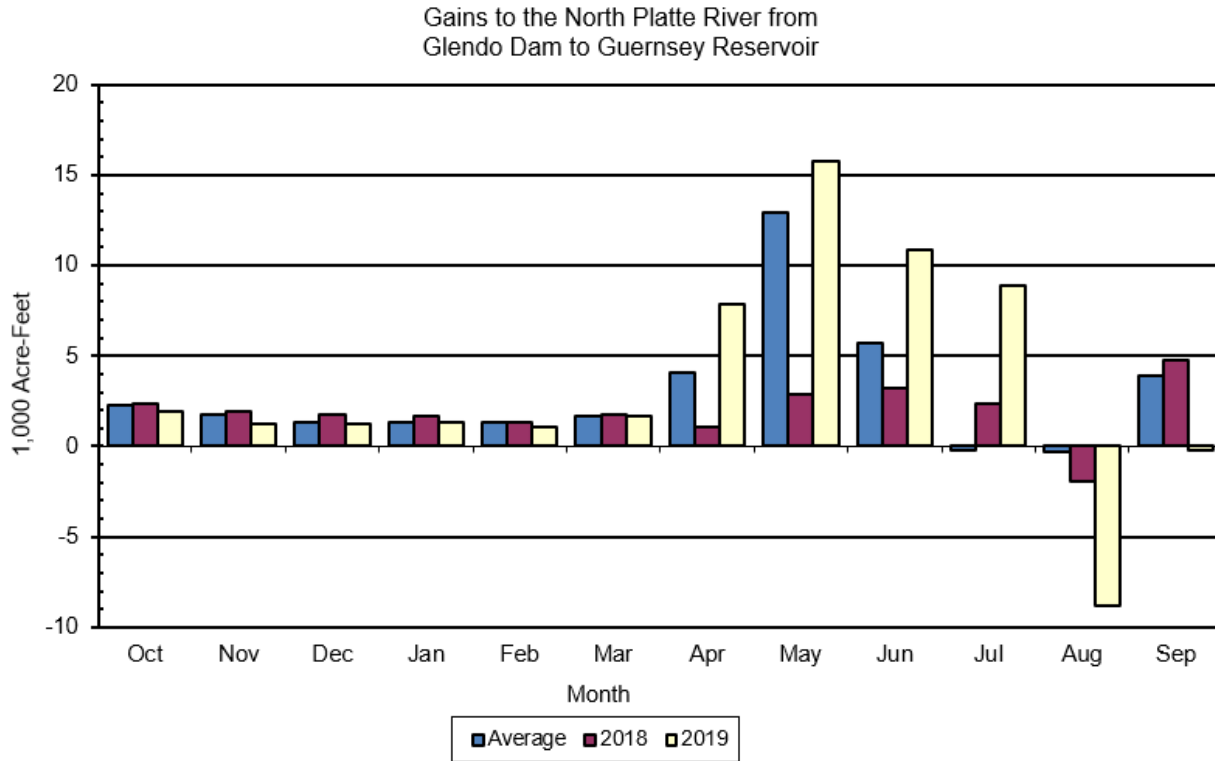


Figure 7 Glendo Reservoir Storage

## Gains to the North Platte River from Glendo Dam to Guernsey Reservoir

The river gains between Glendo Dam and Guernsey Dam during WY 2019 were at or above average for 7 months of the year. April, May, June, and July gains were well above average. The Glendo Dam to Guernsey Reservoir river gains ranged from a high of 194 percent of average in April 2019 to a low of 74 percent in November 2018. The month of August and September were negative which made a percentage value meaningless. On July 19, 2019, the daily computed inflow to Guernsey Reservoir peaked at 8,093 cfs. Figure 8 depicts a comparison of average, WY 2018 and WY 2019 monthly river gains.



**Figure 8** Gains to the North Platte River from Glendo Dam to Guernsey Reservoir

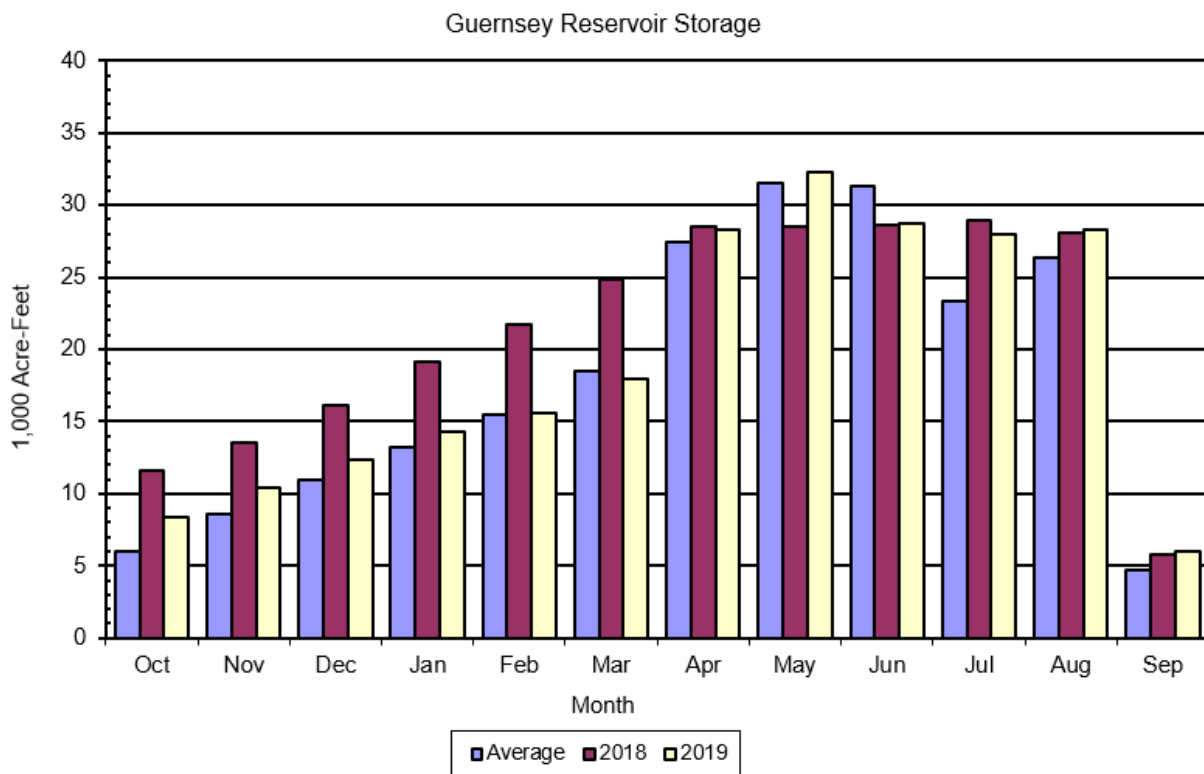
## Guernsey Reservoir Storage and Releases

Guernsey Dam located about 25 miles below Glendo Dam, again stores and re-regulates the flow of the river prior to delivery of storage water to project lands of the North Platte Project and Glendo Unit. Guernsey Powerplant, located on the right abutment of the dam, has two 3.2 MW electrical generating units with a combined release capability of about 1,340 cfs. The windings of both units have been replaced resulting in the rating of 3.2 MW per unit. The north spillway gate, with a capacity of 50,000 cfs at a reservoir level of 4,420 feet, is utilized for irrigation releases to supplement the maximum powerplant releases.

The original capacity of the reservoir was 73,800 AF, but this has been greatly reduced by deposition of silt. Utilizing data from the 1980 Sedimentation Survey of Guernsey Reservoir, the March 1982 - Area Capacity Tables and Curves show about 45,612 AF of available storage.

At the beginning of WY 2019, storage in Guernsey Reservoir was at 5,781 AF. Reclamation began filling Guernsey on April 17, 2019 and releases commenced on April 22, 2019 to move water into the Inland Lakes. The annual "silt run" from the reservoir was initiated on July 11 and continued for only 8 days (normally the silt run is for 14 days) due to an irrigation tunnel collapse on the Fort Laramie Canal. Reservoir storage was reduced to initiate the "silt run" and was maintained at a low level throughout the period. The minimum reservoir content during the "silt run" of 976 AF occurred on July 16, 2019. During the early morning hours on July 17, a collapse in tunnel Number 2 on the Fort Laramie Canal, about one and a half miles south of the town of Fort Laramie, caused water to back up and breach the canal bank upstream of the tunnel. Due to the tunnel collapse the rest of the

irrigation districts decided to terminate the silt run early. Following the "silt run", the reservoir was refilled to approximately 29,000 AF. Although the silt run was terminated early the releases from Guernsey Dam averaged 4,613 cfs from July 25<sup>th</sup> to August 25<sup>th</sup> due to end of season storage concerns which affect potential spring melt storage capacity and potential flood flows. After emergency repairs were completed on the collapsed tunnel, service to the Fort Laramie canal was restored on August 28<sup>th</sup>. Ft Laramie canal flows were gradually increased over a period of 10 days from 66 cfs to 1243 cfs. An agreement with the District and the State of Wyoming allowed flows to continue into October 2019 for the abnormal year. Flows into Ft Laramie Canal were 0 cfs on October 5<sup>th</sup>. The reservoir end of September storage was 6,001 AF and peaked at 32,946 AF on May 29, 2019. Due to the elongated irrigation season the lowest end of season storage in Guernsey was 1,874 AF on October 03, 2019. Guernsey releases were shutdown on October 04, 2019. See Figure 9 for WY 2018 and WY 2019 storage compared to average.



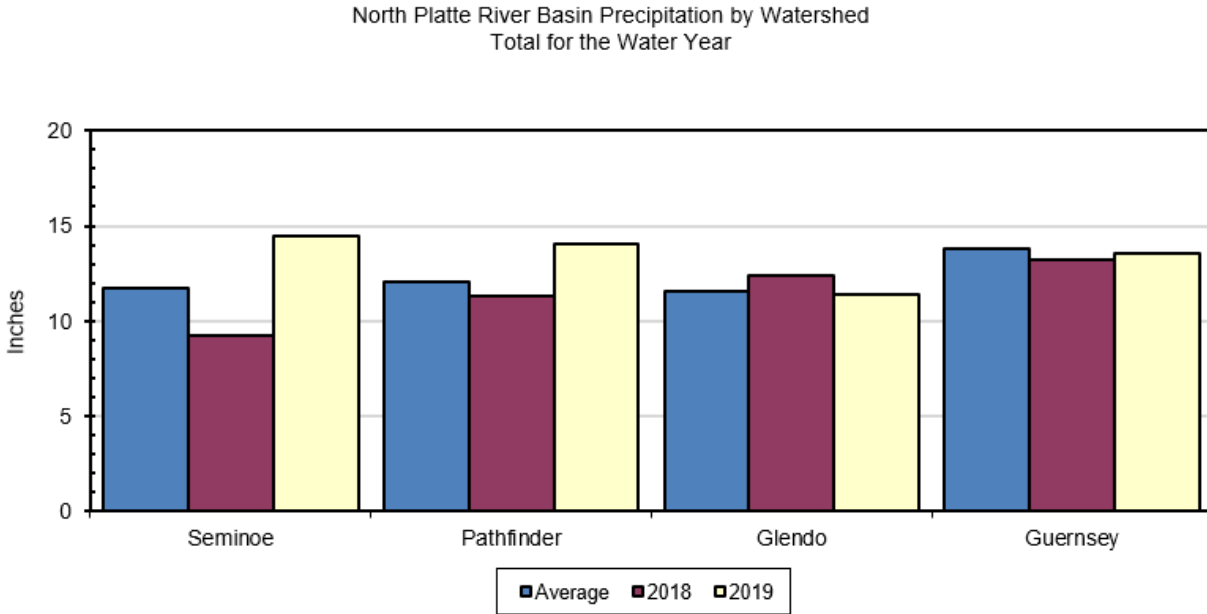
**Figure 9** Guernsey Reservoir Storage

## Precipitation Summary for Water Year 2019

Watershed precipitation in each basin is an average of precipitation readings using several stations as indicators. The 2019 precipitation was at or above average for most of the North Platte River Basin. Seven months of the year precipitation was near or well above the 30-year average for Seminoe, Pathfinder, Glendo, and Guernsey. Precipitation's percent of average high for the water year ranged from 299 percent in the Seminoe basin to 165 percent in the Glendo basin. Pathfinder basin was at 174 percent and Guernsey basin was at 137 percent of average.

The North Platte basin received the majority of its precipitation in March through June for WY 2019. Glendo basin precipitation had the lowest at 21 percent of average for August and 35 percent for July. The North Platte Basin precipitation percents of average for March through June were as follows: Seminoe basin 202 percent, 116 percent, 152 percent, and 299 percent, Pathfinder basin 129 percent, 132 percent, 174 percent, and 108 percent, Glendo basin 165 percent, 91 percent, 143 percent, and 94 percent, and Guernsey basin 116 percent, 62 percent, 129 percent, and 86 percent.

See Figure 10 for a comparison of average, WY 2018 and WY 2019 total precipitation.



**Figure 10** North Platte River Basin Precipitation by Watershed Total for Water Year 2018

# Snowpack Summary for Water Year 2019

Reclamation relies on the Natural Resource Conservation Service (NRCS) to provide snow water equivalent (SWE) information for the three drainage areas in which Reclamation forecasts snowmelt runoff. On February 1<sup>st</sup> the watershed percentage above Seminoe Reservoir snowpack SWE started at 107 percent, decreased 1 percent by March 1<sup>st</sup>, and finished at 106 percent on May 1<sup>st</sup>. In the Sweetwater River watershed, the SWE started at 82 percent of median on February 1<sup>st</sup>, peaked at 115 percent on March 1<sup>st</sup>, and ended the season at 96 percent by May 1<sup>st</sup>. Snow in the Alcova Dam to Glendo Reservoir watershed began at 101 percent of median on February 1<sup>st</sup>, increased to 129 percent by April 1<sup>st</sup>, and finished at 108 percent on May 1<sup>st</sup>. Table 6 shows a summary of snowpack for WY 2019.

**Table 6** North Platte Snowpack Water Content for 2019

Watershed	Feb 1		Mar 1		Apr 1		May 1	
	SWE <sup>1</sup>	percent of Median <sup>2</sup>	SWE <sup>1</sup>	percent of Median <sup>2</sup>	SWE <sup>1</sup>	percent of Median <sup>2</sup>	SWE <sup>1</sup>	percent of Median <sup>2</sup>
Seminoe Reservoir	15.5	107	18.9	106	28.0	119	26.8	106
Pathfinder Reservoir	7.5	82	12.8	115	14.4	97	14.9	96
Glendo Reservoir	6.3	101	9.6	114	14.1	129	9.7	108

<sup>1</sup> SWE (Snow Water Equivalent) is the amount of water in the snowpack expressed in inches.

<sup>2</sup> Median is based on the 1981-2010 period.

## **Allocation for Water Year 2019**

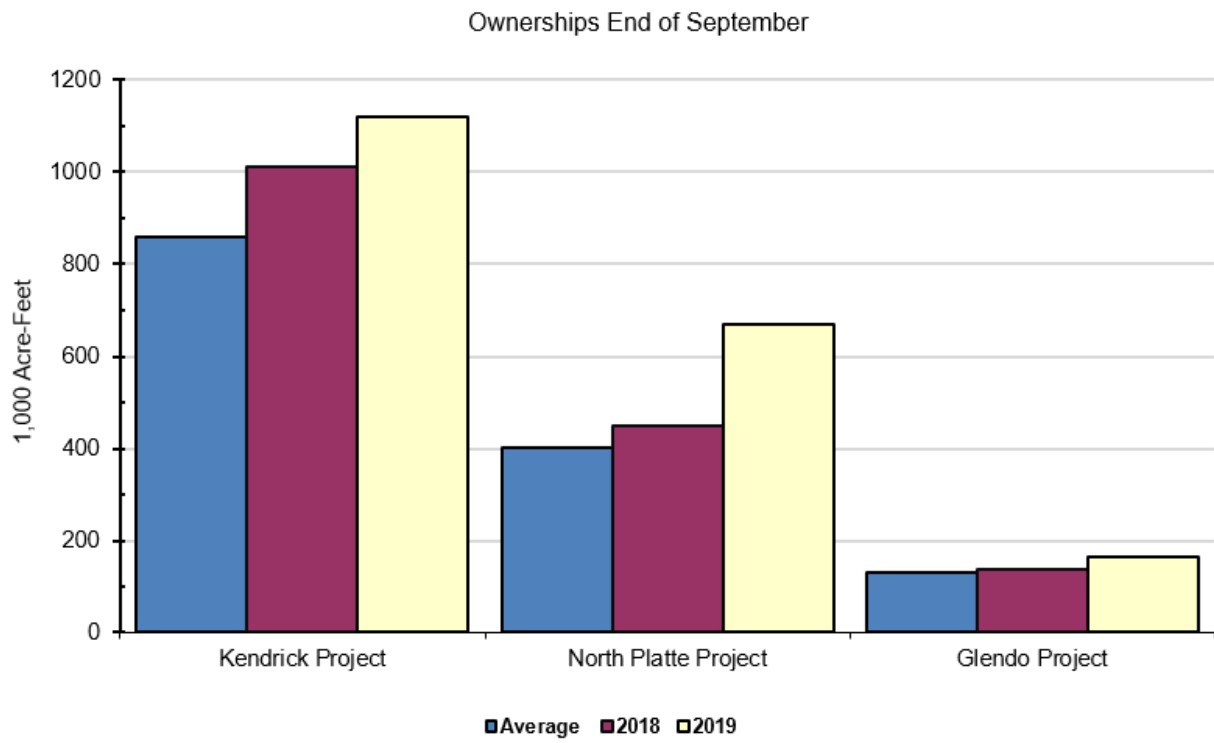
Due to the above average carryover entering the water year and timely spring precipitation, an allocation was not required for the 2019 water year.

## **Ownerships for Water Year 2019**

Stored water which is held in accounts for various entities is referred to as their ownership. At the beginning of WY 2019, the North Platte Project ownership (includes North Platte Pathfinder and North Platte Guernsey), contained 449,112 AF of water, which is 113 percent of average. The Kendrick ownership contained 1,013,268 AF of water, which is 118 percent of average. The Glendo ownership contained 138,582 AF of water, which is 107 percent of average.

The total amount of water stored at the end of WY 2019 in the mainstem reservoirs for use in WY 2019 was 2,026,448 AF which was 144 percent of average.

At the end of WY 2019, the North Platte Project ownership (includes North Platte Pathfinder and North Platte Guernsey), contained 669,755 AF of water which is 167 percent of average. The Glendo ownership contained 164,983 AF of water which is 128 percent of average. The Kendrick ownership contained 1,121,590 AF, which is 131 percent of average. The Operational/Re-regulation water account contained 60,516 AF. Also stored in the North Platte storage system was 7,604 AF for the city of Cheyenne, 0 AF for the Wyoming Water Development Commission, and 2,000 AF for Pacificorp. See Figure 11 for the last two water years ownership carryover compared with the average carryover for the Kendrick, North Platte, and Glendo Projects. Table 8 shows a summary of ownership for WY 2019.



**Figure 11** Ownership End of September

# North Platte River Forecast 2019

Reservoir inflow forecasts are prepared at the first of February, March, April, and May to estimate the inflows expected for the April through July runoff period.

Runoff forecasts for the Seminoe Reservoir watershed, the Sweetwater River above Pathfinder Reservoir, and the North Platte River from Alcova Dam to Glendo Reservoir are based on snow telemetry (SNOTEL) and/or snow course sites, precipitation sites, and calculated inflows. Reclamation maintains a database consisting of historic monthly data for reservoir inflows, snow and precipitation stations. WYAO staff coordinates with NRCS Portland Office staff to exchange forecasted numbers. Reclamation forecasts and NRCS forecasts are then reviewed by WYAO management. All the information available is considered and judgement is applied to result in a final forecast of reservoir inflow. The forecasted information is then made available to the public through a news release and is used in updating monthly reservoir operating plans. Table 7 depicts a summary of the monthly forecasts for WY 2019.

**Table 7** Summary of Forecasts of April-July Runoff for Water Year 2019

Forecast Points	Feb		Mar		Apr		May		Actual	
	KAF	Percent of Avg.	KAF	Percent of Avg.	KAF	Percent of Avg.	KAF	Percent of Avg.	Actual April-July KAF	Percent of April - July Avg. <sup>1</sup>
Seminoe Reservoir	810	119	690	101	800	117	7752	113	1008.3	148
Sweetwater River	50	93	60	111	45	84	543	101	57.4	107
Alcova to Glendo	120	90	130	97	160	119	1754	131	210.1	157

<sup>1</sup> Average is based on the 1989-2018 period.

<sup>2</sup> The May 1 forecast includes an actual April inflow of 147,253 AF.

<sup>3</sup> The May 1 forecast includes an actual April inflow of 17,576 AF.

<sup>4</sup> The May 1 forecast includes an actual April inflow of 88,319 AF.



Table 8 Summary of North Platte River System Ownership for Water Year 2019

Summary of North Platte River Systems Ownerships for Water Year 2019 (Acre-Feet)														
Months	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
<b>Pathfinder Ownership</b>														
Evaporation		-1,501	-495	-1,811	-604	-453	-1,039	-3,536	-5,746	-10,190	-11,975	-9,255	-7,215	-53,820
Accrual		23,606	19,599	21,052	25,329	27,391	49,129	164,784	249,892	55,441	0	0	0	636,223
Delivery		0	0	0	0	0	0	0	0	0	-576	-22,753	-16,016	-39,345
A/ PP&L payback		0	0	0	0	0	0	0	806	600	0	0	0	1,406
Evaporation payback										8,634	11,975			20,609
Re-Regulation transfer												-254,430	-90,000	-344,430
Ownership total		471,217	490,321	509,562	534,287	561,225	609,315	770,563	1,015,515	1,070,000	1,069,424	782,986	669,755	
Actual Ownership	449,112	471,217	490,321	509,562	534,287	561,225	609,315	770,563	1,015,515	1,070,000	1,069,424	782,986	669,755	
<b>Kendrick Ownership</b>														
Evaporation		-2,011	-752	-2,919	-916	-672	-1,460	-4,162	-4,652	-8,931	-12,052	-11,142	-8,429	-58,098
Accrual		0	0	0	0	0	0	0	0	195,462	0	0	0	195,462
Delivery		0	0	0	0	0	0	0	-1,781	-1,085	0	-517 *	0	-3,383
Evaporation payback										22,289	12,052	0	0	34,341
Re-Regulation transfer							0	0	0	0	0	-50,000	-10,000	-60,000
Ownership total		1,011,257	1,010,505	1,007,586	1,006,670	1,005,998	1,004,538	1,000,376	993,943	1,201,678	1,201,678	1,140,019	1,121,590	
Actual Ownership	1,013,268	1,011,257	1,010,505	1,007,586	1,006,670	1,005,998	1,004,538	1,000,376	993,943	1,201,678	1,201,678	1,140,019	1,121,590	
* Delivery to the City of Casper														
<b>Glendo Ownership</b>														
Evaporation		-865	-381	-159	-200	-157	-339	-1,222	-934	-2,936	-2,683	-2,052	-2,218	-14,146
Accrual		0	0	0	0	0	0	28,933	4,148	0	0	0	0	33,081
B/ Delivery		0	0	0	0	0	0	0	0	0	0	-820	-1,590	-2,410
Evaporation payback									4,257	2,936	2,683	0	0	9,876
Ownership total		137,717	137,336	137,177	136,977	136,820	136,481	164,192	171,663	171,663	171,663	168,791	164,983	
Actual Ownership	138,582	137,717	137,336	137,177	136,977	136,820	136,481	164,192	171,663	171,663	171,663	168,791	164,983	
<b>Guernsey Ownership</b>														
Evaporation		0	0	-17	-37	-78	-109	-597	-486	-1,009	-1,029	-42	0	-3,404
Accrual		0	0	6,984	6,739	6,625	15,379	10,444	0	0	0	0	0	46,171
B/ Delivery		0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation payback									765	1,009	1,029	0	0	2,803
Re-Regulation transfer												-45,570	0	-45,570
Ownership total		0	0	6,967	13,669	20,216	35,486	45,333	45,612	45,612	45,612	0	0	
Actual Ownership	0	0	0	6,967	13,669	20,216	35,486	45,333	45,612	45,612	45,612	0	0	
<b>Inland Lakes</b>														
Evaporation		-21	-32	-31	-30	-42	-44	-210	-39	0	0	0	0	-449
Accrual		9,605	9,160	0	0	0	0	27,427	0	0	0	0	0	46,192
C/ Delivery		0	0	0	0	0	0	-15,940	-29,803	0	0	0	0	-45,743
Ownership total		9,584	18,712	18,681	18,651	18,609	18,565	29,842	0	0	0	0	0	
Actual Ownership	0	9,584	18,712	18,681	18,651	18,609	18,565	29,842	0	0	0	0	0	

Summary of North Platte River Systems Ownerships for Water Year 2019 (Acre-Feet)

Months	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
<b>City of Cheyenne</b>														
Evaporation		0	0	-12	-1	0	-7	-48	-42	-27	-60	-71	-58	-326
Stored		768	591	753	831	1,197	1,507	690	62	1,763	3,532	766	1,099	13,559
Used		-131	-220	-13	-77	-11	-37	-460	-3,663	-4,283	-431	-70	-307	-9,703
Ownership total		4,711	5,082	5,810	6,563	7,749	9,212	9,394	5,751	3,204	6,245	6,870	7,604	
<b>Actual Ownership</b>	4,074	4,711	5,082	5,810	6,563	7,749	9,212	9,394	5,751	3,204	6,245	6,870	7,604	
<b>Pacific Corp (PP&amp;L)</b>														
Evaporation		-3	-2	0	0	-2	-2	-7	-10	-26	-27	-27	-26	-132
Accrual		0	0	0	0	0	0	0	26	26	27	27	26	132
Delivery		0	0	0	0	0	0	0	0	0	0	0	0	0
Ownership total		1,997	1,995	1,995	1,995	1,993	1,991	1,984	2,000	2,000	2,000	2,000	2,000	
<b>Actual Ownership</b>	2,000	1,997	1,995	1,995	1,995	1,993	1,991	1,984	2,000	2,000	2,000	2,000	2,000	
<b>D/ WWDC Ownership</b>														
Evaporation		0	0	0	0	0	0	0	0	0	0	0	0	0
Accrual		0	0	0	0	0	0	0	0	0	0	0	0	0
Delivery		0	0	0	0	0	0	0	0	0	0	0	0	0
Ownership total		0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Actual Ownership</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Operational Ownership</b>														
Evaporation		-34	-6	0	0	-6	-6	-48	-72	-160	-186	-183	-176	-877
Accrual		0	0	0	0	0	0	3,421	4,475	0	0	0	0	7,896
Delivery		0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation payback									67	160	186	0	0	413
Ownership total		7,175	7,169	7,169	7,169	7,163	7,157	10,530	15,000	15,000	15,000	14,817	14,641	
<b>Actual Ownership</b>	7,209	7,175	7,169	7,169	7,169	7,163	7,157	10,530	15,000	15,000	15,000	14,817	14,641	
<b>Re-Regulation Water</b>														
Evaporation		0	0	0	0	0	0	0	-75	-355	-945	-3,102	-1,142	-5,619
Accrual		0	0	0	0	0	0	0	45,345	130,523	35,894	-235,652	-168,569	-192,459
Delivery		0	0	0	0	0	0	0	-5,089	-40,792	-97,213	0	100,000	-43,094
Evaporation Payback										-35,028	-27,925	0	0	-62,953
Re-Regulation Transfer							0	0	0	0	0	350,000	0	350,000
Ownership total		0	0	0	0	0	0	0	40,181	94,529	4,340	115,586	45,875	
<b>Actual Ownership</b>	0	0	0	0	0	0	0	0	40,181	94,529	4,340	115,586	45,875	
<b>Pathfinder Ownership Without Modification</b>														
Evaporation		-1,469	-494	-1,774	-592	-450	-1,015	-3,490	-5,694	-9,833	-11,513	-8,797	-7,068	-52,189
Accrual		23,606	19,599	21,052	25,329	27,391	49,129	164,784	250,698	22,301	11,513	0	0	615,402
Delivery		0	0	0	0	0	0	0	0	0	-576	-255,294	-90,000	-345,870
Ownership total		459,566	478,671	497,949	522,686	549,627	597,741	759,035	1,004,039	1,016,507	1,015,931	751,840	654,772	
<b>Actual Ownership</b>	437,429	459,566	478,671	497,949	522,686	549,627	597,741	759,035	1,004,039	1,016,507	1,015,931	751,840	654,772	

**Summary of North Platte River Systems Ownerships for Water Year 2019 (Acre-Feet)**

Months	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
<b>Kendrick Ownership Without Modification</b>														
Evaporation		-2,070	-782	-3,014	-952	-700	-1,512	-4,292	-4,796	-9,208	-12,052	-11,142	-8,429	<b>-58,949</b>
Accrual		0	0	0	0	0	0	0	0	185,097	12,052	0	0	<b>197,149</b>
Delivery		0	0	0	0	0	0	0	-1,781	-4,278	0	-50,517	-10,000	<b>-66,576</b>
Ownership total		1,047,896	1,047,114	1,044,100	1,043,148	1,042,448	1,040,936	1,036,644	1,030,067	1,201,678	1,201,678	1,140,019	1,121,590	
<b>Actual Ownership</b>		1,049,966	1,047,896	1,047,114	1,044,100	1,043,148	1,040,936	1,036,644	1,030,067	1,201,678	1,201,678	1,140,019	1,121,590	

**A/** In 1992, the Wyoming State Engineer granted an exchange which allows Pacific Power to exchange direct flows in the winter months (Oct-Apr) for direct flow in the summer months. During the winter months some direct flows which are available for storage under Pathfinder's storage right are not stored but instead are allowed to pass downstream for use by Pacific Power. In exchange, starting on May 1 Pacific Power allows some of its available direct flow to pass downstream to Glendo Reservoir to be stored as Pathfinder ownership. The exchange water was returned to Pathfinder at a rate of 26 AF daily starting on May 1, 2018, until June 30, 2018, when the last 14 AF of the exchange was returned.

**B/** Amounts shown as delivery are storage water only. Natural flow which was delivered is not shown in this table.

**C/** Transfer refers to Inland Lakes ownership water which was delivered from storage in Glendo or Guernsey Reservoirs. In April and May, 45,743 AF was transferred to the Inland Lakes.

**D/** Wyoming Water Development Commission (WWDC) did not contract with the Bureau of Reclamation for storage space.

**Table 9 Actual Reservoir Operations for Water Year 2019**

NPRAOP V1.1K 21-Mar-2003 Run: 12-Nov-2019 10:53

Based on Water Year 2019 Actual Monthly Inflows (April - July Inflows 1008.3 kaf)

**NORTH PLATTE RIVER OPERATING PLAN**  
Year Beginning Oct 2018

HYDROLOGY OPERATIONS

Seminoe Reservoir Operations		Initial Content 672.7 Kaf						Operating Limits: Max 1017.3 Kaf, 6357.00 Ft. Min 31.7 Kaf, 6239.02 Ft.						Total
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Inflow	kaf	19.3	18.3	20.7	21.6	22.5	40.2	147.3	213.1	437.1	210.9	53.0	20.9	1224.9
Total Inflow	cfs	314.	308.	337.	351.	391.	654.	2475.	3466.	7346.	3430.	862.	351.	
Turbine Release	kaf	32.8	31.8	33.0	32.9	30.8	33.0	87.1	161.0	184.4	184.5	68.4	45.2	924.9
Jetflow Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.7	53.0	0.0	0.0	105.7
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Release	kaf	32.8	31.8	33.0	32.9	30.8	33.0	87.1	161.0	237.1	237.5	68.4	45.2	1030.6
Total Release	cfs	533.	534.	537.	535.	535.	537.	1464.	2618.	3985.	3863.	1112.	760.	
Evaporation	kaf	1.5	0.4	2.1	0.6	0.4	0.9	3.0	3.5	7.2	10.1	9.1	6.5	45.3
End-month content	kaf	657.8#	643.8#	629.5#	617.5#	609.8#	616.0#	673.1#	721.8#	914.2#	878.0#	853.5#	822.7#	
End-month elevation	ft	6336.1	6335.1	6334.1	6333.2	6332.6	6333.1	6337.2	6340.4	6351.7	6349.7	6348.4	6346.6	
Kortes Reservoir Operations		Initial Content 4.7 Kaf						Operating Limits: Max 4.8 Kaf, 6142.73 Ft. Min 1.7 Kaf, 6092.73 Ft.						Total
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Inflow	kaf	32.8	31.8	33.0	32.9	30.8	33.0	87.1	161.0	237.1	237.5	68.4	45.2	1030.6
Total Inflow	cfs	533.	534.	537.	535.	535.	537.	1464.	2618.	3985.	3863.	1112.	760.	
Turbine Release	kaf	32.7	31.8	33.0	32.9	30.8	33.0	87.1	160.5	155.3	160.5	68.4	45.2	871.2
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	81.8	77.0	0.0	0.0	159.3
Total Release	kaf	32.7	31.8	33.0	32.9	30.8	33.0	87.1	161.0	237.1	237.5	68.4	45.2	1030.5
Total Release	cfs	532.	534.	537.	535.	535.	537.	1464.	2618.	3985.	3863.	1112.	760.	
Min reservoir rels	cfs	532.	535.	536.	535.	536.	536.	1464.	2618.	3985.	3862.	1112.	760.	
Max reservoir rels	cfs	532.	535.	536.	535.	536.	536.	1464.	2618.	3985.	3862.	1112.	760.	
Pathfinder Reservoir Operations		Initial Content 591.7 Kaf						Operating Limits: Max 1095.0 Kaf, 5853.56 Ft. Min 31.4 Kaf, 5746.00 Ft.						Total
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Sweetwater Inflow	kaf	2.5	2.7	2.3	2.5	2.4	3.7	10.8	17.6	22.8	6.3	1.6	1.1	76.3
Kortes-Path Gain	kaf	2.2	-1.6	-0.1	0.6	4.4	7.8	7.8	13.6	-4.1	-8.0	-11.6	-3.9	7.1
Inflow from Kortes	kaf	32.7	31.8	33.0	32.9	30.8	33.0	87.1	161.0	237.1	237.5	68.4	45.2	1030.5
Total Inflow	kaf	37.4	32.9	35.2	36.0	37.6	44.5	105.7	192.2	255.8	235.8	58.4	42.4	1113.9
Total Inflow	cfs	608.	553.	572.	585.	654.	724.	1776.	3126.	4299.	3835.	950.	713.	
Turbine Release	kaf	0.0	0.0	0.0	0.0	24.8	32.3	60.2	29.8	82.7	148.9	148.1	81.4	608.2
Jetflow Release	kaf	8.6	30.4	30.6	31.0	4.2	4.6	4.6	4.7	5.8	43.9	25.3	5.2	198.9
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Release	kaf	8.6	30.4	30.6	31.0	29.0	36.9	64.8	34.5	88.5	192.8	173.4	86.6	807.1
Total Release	cfs	140.	511.	498.	504.	504.	600.	1089.	561.	1487.	3136.	2820.	1455.	
Evaporation	kaf	1.7	0.5	2.4	0.7	0.5	1.0	3.4	5.3	9.2	11.8	10.6	8.2	55.3
End-month content	kaf	618.8	621.0	623.1	628.4	636.4	642.7	680.7	833.1	991.4	1022.5	896.9	844.7	
End-month elevation	ft	5828.7	5828.9	5829.0	5829.3	5829.9	5830.3	5832.7	5841.2	5849.0	5850.4	5844.4	5841.8	
Jetflow Release	cfs	140.	511.	498.	504.	73.	75.	77.	76.	97.	714.	411.	87.	
Min Release	cfs	126.0	500.0	467.0	394.0	73.0	75.0	78.0	76.0	98.0	714.0	412.0	87.0	
Alcova Reservoir Operations		Initial Content 180.0 Kaf						Operating Limits: Max 184.4 Kaf, 5500.00 Ft. Min 145.3 Kaf, 5483.12 Ft.						Total
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Total Inflow	kaf	8.6	30.4	30.6	31.0	29.0	36.9	64.8	34.5	88.5	192.8	173.4	86.6	807.1
Total Inflow	cfs	140.	511.	498.	504.	504.	600.	1089.	561.	1487.	3136.	2820.	1455.	
Turbine Release	kaf	31.2	29.8	30.8	30.8	28.8	36.2	42.3	31.0	77.9	174.8	154.6	71.9	740.1
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Casper Canal Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.8	17.0	17.6	13.6	59.8
Total Release	kaf	31.2	29.8	30.8	30.8	28.8	36.2	42.3	32.8	87.7	191.8	172.2	85.5	799.9
Total Release	cfs	507.	501.	501.	501.	501.	589.	711.	533.	1474.	3119.	2801.	1437.	
Evaporation	kaf	0.3	0.1	0.3	0.1	0.1	0.2	0.5	0.7	1.1	1.3	1.2	1.0	6.9
End-month content	kaf	157.1*	157.6*	157.1*	157.2*	157.3*	157.8*	179.8*	180.8*	180.5*	180.2*	180.2*	180.3*	
End-month elevation	ft	5488.5	5488.7	5488.5	5488.5	5488.6	5488.8	5498.1	5498.5	5498.4	5498.3	5498.3	5498.3	

NORTH PLATTE RIVER OPERATING PLAN  
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Gray Reef Reservoir Operations		Initial Content 1.3 Kaf										Operating Limits: Max 1.7 Kaf, 5331.44 Ft.		Min 0.0 Kaf, 5306.00 Ft.		Total
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep			
Total Inflow	kaf	31.2	29.8	30.8	30.8	28.8	36.2	42.3	31.0	77.9	174.8	154.6	71.9	740.1		
Total Inflow	cfs	507.	501.	501.	501.	501.	589.	711.	504.	1309.	2843.	2514.	1208.			
Total Release	kaf	30.8	29.8	30.8	30.8	28.8	36.2	42.2	30.9	77.8	174.7	154.5	71.8	739.1		
Total Release	cfs	501.	501.	501.	501.	501.	589.	709.	503.	1307.	2841.	2513.	1207.			
Min reservoir rels	cfs	501.	501.	501.	501.	501.	588.	710.	502.	1307.	2841.	2512.	1206.			
Max reservoir rels	cfs	501.	501.	501.	501.	501.	588.	710.	502.	1307.	2841.	2512.	1206.			
Glendo Reservoir Operations		Initial Content 158.0 Kaf										Operating Limits: Max 763.0 Kaf, 4653.00 Ft.		Min 51.6 Kaf, 4570.01 Ft.		Total
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep			
Alcova-Glendo Gain	kaf	9.0	8.7	6.7	6.4	6.3	14.6	62.7	88.3	53.9	5.2	0.4	8.8	271.0		
Infl from Gray Reef	kaf	30.8	29.8	30.8	30.8	28.8	36.2	42.2	30.9	77.8	174.7	154.5	71.8	739.1		
Total Inflow	kaf	39.8	38.5	37.5	37.2	35.1	50.8	104.9	119.2	131.7	179.9	154.9	80.6	1010.1		
Total Inflow	cfs	647.	647.	610.	605.	610.	826.	1763.	1939.	2213.	2926.	2519.	1355.			
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	17.5	69.6	159.7	233.4	221.8	185.5	887.5		
Low Flow Release	kaf	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	18.0		
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Irrigation Release	kaf	0.6	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	18.4	75.0	0.0	94.4		
Total Release	kaf	2.1	1.6	1.6	1.7	1.5	1.5	19.0	71.1	161.2	253.3	298.3	187.0	999.9		
Total Release	cfs	34.	27.	26.	28.	26.	24.	319.	1156.	2709.	4120.	4851.	3143.			
Evaporation	kaf	0.8	0.4	0.4	0.7	0.6	0.3	2.4	2.6	5.3	5.6	4.2	2.5	25.8		
End-month content	kaf	195.2#	232.1#	266.6#	302.2#	334.3#	381.7#	464.3#	515.6#	482.3#	400.8#	265.8#	166.4#			
End-month elevation	ft	4602.1	4607.4	4611.9	4616.2	4619.9	4624.8	4632.6	4636.9	4634.2	4626.7	4611.8	4597.5			
Guernsey Reservoir Operations		Initial Content 5.8 Kaf										Operating Limits: Max 45.6 Kaf, 4419.99 Ft.		Min 0.0 Kaf, 4370.00 Ft.		Total
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep			
Glendo-Guerns Gain	kaf	1.9	1.3	1.2	1.4	1.1	1.7	7.9	15.7	10.8	8.9	-8.8	-0.2	42.9		
Inflow from Glendo	kaf	2.1	1.6	1.6	1.7	1.5	1.5	19.0	71.1	161.2	253.3	298.3	187.0	999.9		
Total Inflow	kaf	4.0	2.9	2.8	3.1	2.6	3.2	26.9	86.8	172.0	262.2	289.5	186.8	1042.8		
Total Inflow	cfs	65.	49.	46.	50.	45.	52.	452.	1412.	2891.	4264.	4708.	3139.			
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	16.3	53.2	51.5	53.5	53.6	55.0	283.1		
Seepage	kaf	1.2	0.8	0.9	1.0	0.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	5.6		
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.1	123.1	208.9	234.8	153.4	749.3		
Total Release	kaf	1.2	0.8	0.9	1.0	0.8	0.9	16.3	82.3	174.6	262.4	288.4	208.4	1038.0		
Total Release	cfs	20.	13.	15.	16.	14.	15.	274.	1338.	2934.	4268.	4690.	3502.			
Evaporation	kaf	0.1	0.1	0.0	0.1	0.1	0.1	0.5	0.5	0.9	0.6	0.9	0.6	4.6		
End-month content	kaf	8.4*	10.4*	12.3*	14.3*	16.0#	18.2#	28.3*	32.3*	28.8*	28.0*	28.2*	6.0*			
End-month elevation	ft	4398.7	4400.7	4402.3	4403.8	4404.7	4406.3	4412.1	4414.0	4412.3	4411.9	4412.0	4395.9			
Physical EOM Cont	kaf	1643.7	1671.1	1694.9	1726.0	1759.8	1822.8	2032.2	2289.7	2603.7	2516.0	2231.1	2026.4			

NORTH PLATTE RIVER OPERATING PLAN  
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OWNERSHIP OPERATIONS

North Platte Pathfinder		Initial Ownership 449.1 Kaf, Accrued this water year: 642.2 Kaf												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Net Accrual	kaf	22.7	19.2	21.3	25.4	27.4	48.9	162.5	249.7	65.1	0.0	0.0	0.0	642.2
Evaporation	kaf	0.6	0.1	2.0	0.7	0.5	0.8	1.2	4.8	10.6	0.6	11.0	7.2	54.4
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	276.5	104.9	378.5
End-month Ownership	kaf	471.2	490.3	509.6	534.3	561.2	609.3	770.6	1015.5	1070.0	1069.4	781.9	669.8	
North Platte Guernsey		Initial Ownership 0.0 Kaf, Accrued this water year: 45.6 Kaf												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Net Accrual	kaf	0.0	0.0	7.0	6.8	6.6	15.4	9.8	0.0	0.0	0.0	0.0	0.0	45.6
Evaporation/Seepage	kaf	0.0	0.0	0.9	1.0	0.8	0.9	0.2	0.2	0.3	0.3	0.3	0.0	4.9
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	16.3	0.0	0.0	0.0	28.2	0.0	44.5
End-month Ownership	kaf	0.0	0.0	7.0	13.8	20.4	35.8	29.3	29.1	28.8	28.5	0.0	0.0	
Inland Lakes		Initial Ownership 0.0 Kaf, Accrued this water year: 46.0 Kaf												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Net Accrual	kaf	9.7	9.2	0.0	0.0	0.0	0.0	27.1	0.0	0.0	0.0	0.0	0.0	46.0
Evaporation/Seepage	kaf	1.2	0.8	0.1	0.0	0.1	0.1	0.1	0.3	0.5	0.5	0.4	0.4	4.5
Trnsfr fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
End-month Ownership	kaf	9.7	18.9	18.8	18.8	18.7	18.6	45.7	45.4	44.9	44.4	44.0	43.6	
Kendrick		Initial Ownership 1013.2 Kaf, Accrued this water year: 212.4 Kaf												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Net Accrual	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	212.4	0.0	0.0	0.0	212.4
Evaporation	kaf	2.8	0.9	3.1	1.3	1.0	1.4	5.4	6.2	10.3	13.6	12.3	9.9	68.2
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	17.6	13.6	33.0
End-month Ownership	kaf	1010.4	1009.5	1006.4	1005.1	1004.1	1002.7	997.3	989.3	1201.7	1188.1	1158.2	1134.7	
Glendo Unit		Initial Ownership 138.6 Kaf, Accrued this water year: 19.1 Kaf												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Accrual	kaf	0.0	0.0	0.0	0.0	0.0	0.0	19.1	0.0	0.0	0.0	0.0	0.0	19.1
Evaporation	kaf	0.4	0.2	0.4	0.2	0.1	0.2	0.7	1.0	1.6	1.8	1.6	1.3	9.5
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
End-month Ownership	kaf	138.2	138.0	137.6	137.4	137.3	137.1	155.5	154.5	152.9	151.1	149.5	148.2	
Re-regulation		Initial Ownership 0.0 Kaf, Accrued this water year: 86.6 Kaf												
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Accrual	kaf	0.0	0.0	0.0	0.0	0.0	0.0	14.3	21.7	50.6	0.0	0.0	0.0	86.6
Evaporation/Seepage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.0	0.3	0.0	1.7
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.1	28.8	0.0	84.9
End-month total	kaf	0.0	0.0	0.0	0.0	0.0	0.0	14.3	35.9	86.2	29.1	0.0	0.0	

NORTH PLATTE RIVER OPERATING PLAN  
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City of Cheyenne

Initial Ownership 4.1 Kaf,

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Inflow	kaf	0.6	0.4	0.7	0.8	1.1	1.5	0.3	0.4	0.5	3.6	0.8	0.7	11.4
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.3
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	3.0	0.5	0.0	0.0	7.5
Ownership	kaf	4.7	5.1	5.8	6.6	7.7	9.2	9.4	5.8	3.2	6.2	6.9	7.6	

Pacificorp

Initial Ownership 2.0 Kaf,

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ownership	kaf	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	

Other

Initial Ownership 7.2 Kaf,

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	3.3	44.8	54.4	0.0	112.3	0.0	214.8
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.5
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.1	0.0	85.7	175.8
Ownership	kaf	7.2	7.2	7.2	7.2	7.2	7.2	10.5	55.2	109.5	19.3	131.5	45.7	

IRRIGATION DELIVERY

Kendrick (Casper Canal)		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Requested	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.8	17.0	17.6	13.6	59.8
Delivered	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.8	17.0	17.6	13.6	59.8
Kendrick (River)		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Requested	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delivered	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guernsey Deliveries		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
North Platte Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	16.3	82.3	174.6	262.4	288.4	208.4	1032.4
Glendo Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inland Lakes Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Requirement	kaf	0.0	0.0	0.0	0.0	0.0	0.0	16.3	82.3	174.6	262.4	288.4	208.4	1032.4
Seepage	kaf	1.2	0.8	0.9	1.0	0.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	5.6
Actual Release	kaf	1.2	0.8	0.9	1.0	0.8	0.9	16.3	82.3	174.6	262.4	288.4	208.4	1038.0

NORTH PLATTE RIVER OPERATING PLAN  
 Year Beginning Oct 2018

POWER GENERATION

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
-----														
Seminoe Power Plant														
Turbine Release	kaf	32.8	31.8	33.0	32.9	30.8	33.0	87.1	161.0	184.4	184.5	68.4	45.2	924.9
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.7	53.0	0.0	0.0	105.7
Maximum generation	gwh	20.491	19.618	20.526	26.249	29.897	31.947	31.493	33.486	32.181	32.841	32.921	32.096	343.746
Actual generation	gwh	4.158	4.534	4.272	4.201	3.592	4.057	13.794	28.200	29.395	29.787	9.029	5.984	141.003
Percent max generation		20.	23.	21.	16.	12.	13.	44.	84.	91.	91.	27.	19.	41.
Average kwh/af		167.	166.	165.	164.	164.	164.	166.	169.	175.	178.	176.	176.	172.
-----														
Kortes Power Plant														
Turbine Release	kaf	32.7	31.8	33.0	32.9	30.8	33.0	87.1	160.5	155.3	160.5	68.4	45.2	871.2
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	81.8	77.0	0.0	0.0	159.3
Maximum generation	gwh	28.346	23.168	18.404	21.362	15.979	14.242	22.859	27.606	26.712	27.606	27.606	26.712	280.602
Actual generation	gwh	5.518	5.370	5.707	5.215	4.661	5.175	15.421	30.000	28.788	28.379	10.479	7.256	151.96
Percent max generation		19.	23.	31.	24.	29.	36.	67.	109.	108.	103.	38.	27.	54.
Average kwh/af		172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.
-----														
Fremont Canyon														
Turbine Release	kaf	0.0	0.0	0.0	0.0	24.8	32.3	60.2	29.8	82.7	148.9	148.1	81.4	608.2
Bypass	kaf	8.6	30.4	30.6	31.0	4.2	4.6	4.6	4.7	5.8	43.9	25.3	5.2	198.9
Maximum generation	gwh	0.021	0.000	0.000	0.788	28.210	45.692	44.429	46.779	45.721	47.326	47.292	45.693	351.142
Actual generation	gwh	0.021	0.000	0.000	0.788	6.195	8.236	17.291	8.200	25.252	48.299	46.858	25.191	186.131
Percent max generation		100.	0.	0.	100.	22.	18.	39.	18.	55.	102.	99.	55.	53.
Average kwh/af		0.	0.	0.	0.	270.	270.	272.	277.	279.	280.	280.	279.	278.
-----														
Alcova Power Plant														
Turbine Release	kaf	31.2	29.8	30.8	30.8	28.8	36.2	42.3	31.0	77.9	174.8	154.6	71.9	740.1
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum generation	gwh	27.189	26.418	27.304	19.846	13.242	16.286	22.816	27.552	26.656	27.552	27.552	26.656	289.069
Actual generation	gwh	3.308	3.318	3.472	3.470	3.209	3.877	4.729	3.200	10.503	24.745	21.573	9.315	94.719
Percent max generation		12.	13.	13.	17.	24.	24.	21.	12.	39.	90.	78.	35.	33.
Average kwh/af		138.	136.	136.	136.	136.	136.	138.	140.	140.	140.	140.	140.	139.
-----														
Glendo Power Plant														
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	17.5	69.6	159.7	233.4	221.8	185.5	887.5
Bypass	kaf	2.1	1.6	1.6	1.7	1.5	1.5	1.5	1.5	1.5	19.9	76.5	1.5	112.4
Maximum generation	gwh	0.000	0.000	0.000	0.000	0.000	0.000	24.626	27.391	26.707	25.914	22.661	17.641	144.940
Actual generation	gwh	0.000	0.000	0.000	0.000	0.000	0.000	1.344	5.700	17.646	23.880	23.594	13.756	85.920
Percent max generation		0.	0.	0.	0.	0.	0.	5.	21.	66.	92.	104.	78.	59.
Average kwh/af		0.	0.	0.	0.	0.	0.	110.	115.	115.	111.	102.	83.	104.
-----														
Guernsey Power Plant														
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	16.3	53.2	51.5	53.5	53.6	55.0	283.1
Bypass	kaf	1.2	0.8	0.9	1.0	0.8	0.9	0.0	29.1	123.1	208.9	234.8	153.4	754.9
Maximum generation	gwh	2.294	0.214	1.365	1.726	1.883	3.584	3.581	3.834	3.714	3.801	3.798	3.471	33.265
Actual generation	gwh	0.000	0.000	0.000	0.000	0.000	0.000	1.064	4.200	4.229	2.630	4.256	3.925	20.406
Percent max generation		0.	0.	0.	0.	0.	0.	30.	110.	114.	69.	112.	113.	61.
Average kwh/af		0.	0.	0.	0.	0.	0.	68.	72.	72.	71.	71.	63.	70.



## Flood Benefits for Water Year 2019

**Table 10** Flood Damage Prevented by Dams for WY 2019 (on the North Platte River Basin System)

<b>DAMS</b>	<b>WATER YEAR 2019</b>	<b>PRIOR TO 2019 <sup>2</sup></b>	<b>ACCUMULATED TOTAL <sup>1</sup></b>
SEMINOIE	\$ 1,467,100	\$ 48,500,600	\$ 49,967,700
PATHFINDER	\$ 2,460,500	\$ 18,421,700	\$ 20,882,200
ALCOVA	\$ 179,200	\$ 2,230,300	\$ 2,409,500
GLENDO	\$ 3,274,200	\$ 116,666,800	\$ 119,941,000
<b>TOTAL</b>	<b>\$ 7,381,000</b>	<b>\$ 185,819,400</b>	<b>\$ 193,200,400</b>

<sup>1</sup> This data is received from the Army Corps of Engineers Omaha District Office and is revised every October.

<sup>2</sup> The period of assessment is 1970 through 2019 except for Glendo Dam, which is 1964 through 2019.

## Generation for Water Year 2019

Power generation was below average for Fremont Canyon and Alcova powerplants; all others were above average in WY 2019. See Table 11 for a breakdown of generation by powerplant.

**Table 11** Power Generation Water Year 2019

<b>Powerplant</b>	<b>Gross generation <sup>1</sup>(GWh)</b>	<b>Percent of Average <sup>2</sup></b>
Seminole	141.0	114
Kortes	152.0	117
Fremont Canyon	186.1	87
Alcova	94.7	89
Glendo	85.9	108
Guernsey	20.4	121
<b>Total Basin</b>	<b>680.1</b>	<b>102</b>

<sup>1</sup> Generation is reported in giga-watt hours (GWh).

<sup>2</sup> 30 year average (1989-2018)

The number of generation units at each powerplant, their capacity, and output at rated head is shown in Table 12.

**Table 12** North Platte River Powerplant Data

<b>Powerplant</b>	<b>Number of Units</b>	<b>Capacity Each Unit (kw)</b>	<b>Total <sup>2</sup> Installed Capacity (kw)</b>	<b>Normal Operating Head (feet)</b>	<b>Output At rated Head (cfs)</b>	<b>30 year Average <sup>1</sup> (GWh)</b>
Seminoe	3	15,000 <sup>3</sup>	51,750 <sup>3</sup>	97-227	4,050	123.9
Kortes	3	12,000	36,000	192-204	2,910	129.8
Fremont Canyon	2	33,400	66,800	247-363	3,080	213.0
Alcova	2	19,500	41,400	153-165	4,100	105.9
Glendo	2	19,000	38,000	73-156	3,400	79.8
Guernsey	2	3,200	6,400	89-91	1,340	16.9
<b>Total</b>	<b>14</b>	<b>---</b>	<b>237,200</b>	<b>---</b>	<b>---</b>	<b>669.3</b>

<sup>1</sup> 1990-2019

<sup>2</sup> Installed capacity from Monthly Report of Power Operations-Powerplant (Form PO&M 59)

<sup>3</sup> A Mechanical restriction allows a 42,000 kw generation, 12,000 kws per unit.

# **PROPOSED OPERATIONS FOR WATER YEAR 2020**

Three operation studies were developed for the System to establish an AOP for WY 2020. Each of the studies conformed to the established operating criteria but used different inflow conditions and different demand conditions.

The three inflow conditions were determined from a statistical analysis of historic inflows and were labeled reasonable minimum, reasonable maximum, and reasonable expected inflow estimates. The reasonable expected inflow is based on long-term averages and approximates a 50 percent chance of occurrence. The three studies for WY 2020 are summarized numerically in tables 15, 16, and 17.

The AOP, as developed and reflected in the three studies, provides the flexibility to adjust operations as conditions change during the water year. Forecasts of the April-July reservoir inflow will be made at the beginning of each month for February through May. Projected operating schedules will be adjusted, as required, throughout the water year as changes occur in the forecasted inflows, irrigation demands, maintenance schedules, and power loads.

The total storage in mainstem reservoirs on the North Platte River in Wyoming (including Kortes Reservoir and Gray Reef Reservoir) was 2,026,400 AF at the beginning of the WY 2020. This amount was 141 percent of the 30 year average (1990-2019) and 72 percent of active conservation capacity.

## **Seminole Reservoir**

### **Most Probable Condition - 2020**

October through March -- Seminole Reservoir has a storage of 822,688 AF at the beginning of WY 2019, which is 139 percent of the 30-year average and 81 percent of active conservation capacity. Planned turbine releases from Seminole Reservoir are approximately 530 cfs for October through March with an increase to 1,042 cfs in April. Reservoir storage would decrease to about 804,900 AF by March 31, 2020. The releases are based on an estimated Seminole inflow for the October through March period of 183,300 AF. The planned Seminole and Kortes release of 530 cfs for October through March is required to maintain a minimum flow of at least 500 cfs in the Miracle Mile reach of the river.

April through September -- Turbine releases are expected to be 1,000 cfs for April and 3,100 cfs for May, 4,300 cfs for June, then decrease to 2,000 cfs in July, and 1300 cfs for August, and 800 cfs in September. There is no bypass expected in the most probable scenario. Seminole Reservoir storage will reach a maximum of 944,000 AF by the end of June. Projected carryover storage of about 831,100 AF at the end of the water year would be 137 percent of average and 82 percent of active conservation capacity.

### **Reasonable Minimum Condition - 2020**

October through March -- Planned water release for this period under reasonable minimum inflow condition will be approximately 530 cfs until March. A release of at least 500 cfs is required to maintain the minimum flow in the Miracle Mile reach of the river. Under this condition, inflows are predicted to be 147,000 AF for the period, which is 36,300 AF less than the most probable condition. March 31 reservoir content is expected to be approximately 769,000 AF.

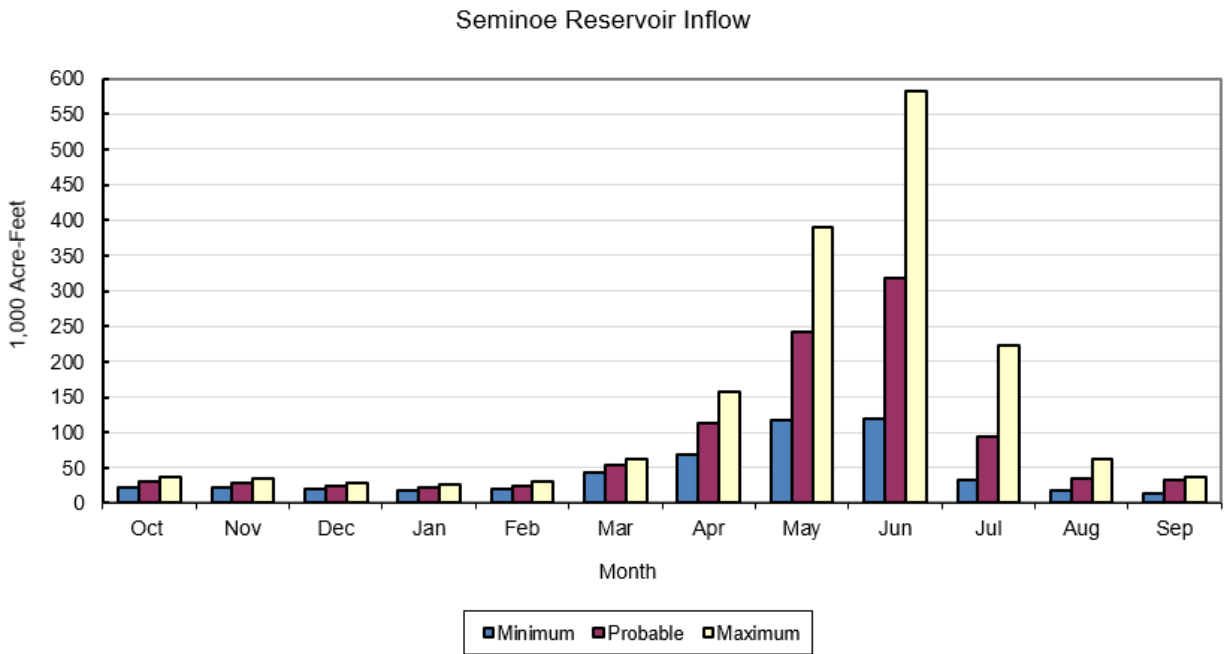
April through September -- Seminole water releases will be at 600 cfs through April, increasing to 1,500 cfs in May, and increasing to approximately 2,100 cfs in June. Releases will decrease through July, August, and September to 1,500 cfs, 1,500 cfs, and 1,200 cfs respectively. Under the minimum condition scenario, the June content will be approximately 800,000 AF, and the water year will end with a content of 593,000 AF which is 98 percent of average and 58 percent of active conservation capacity.

### **Reasonable Maximum Condition - 2020**

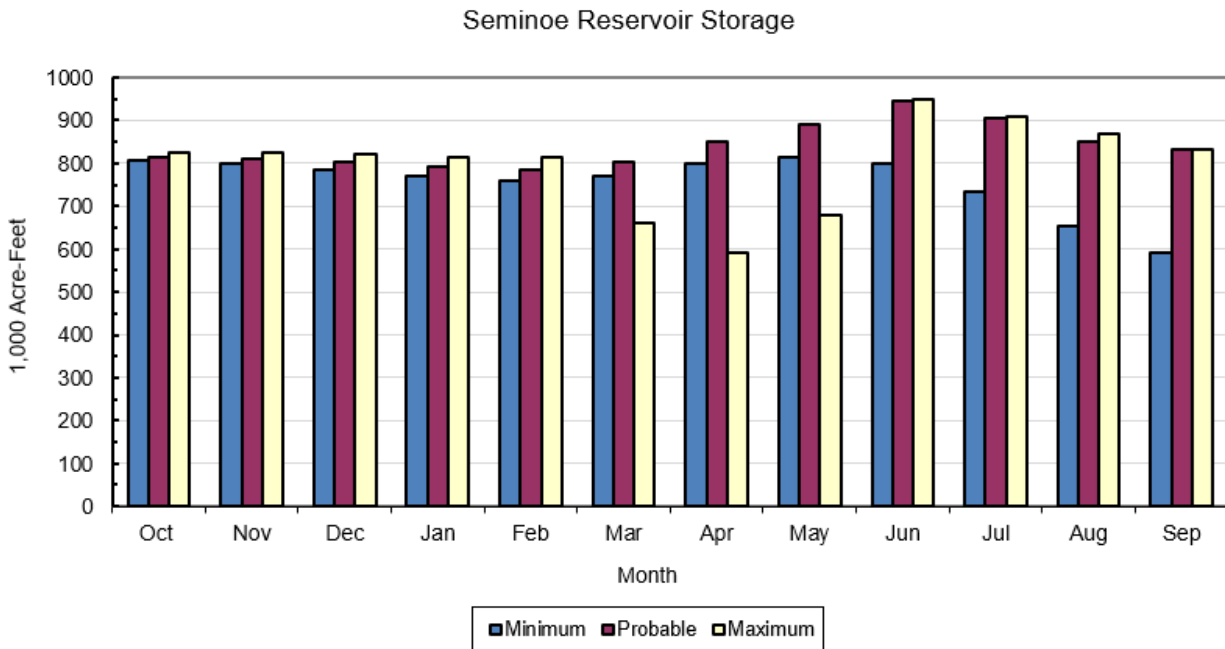
October through March -- Planned water releases for this period under a reasonable maximum inflow condition are similar to the most probable condition as water is moved downstream to generate power and make room in Seminole Reservoir for spring runoff. Although inflows to Seminole Reservoir are higher under these conditions, actual changes in winter operations are made gradually until it is evident that the inflow quantities being experienced are showing a trend towards the maximum inflows for the water year. October through March inflows under this condition would be 220,700 AF, which is 37,400 AF more than the most probable runoff condition. The reservoir content would increase from 659,700 AF at the end of March to 950,000 AF by the end of June under these conditions.

April through September -- Seminole Reservoir release for March will be approximately 3,500 cfs, then releases will increase to about 3,750 cfs in April, 4,775 cfs in May, and 5,100 cfs in June. Releases will then decrease to approximately 4,100 cfs in July, 1,500 cfs for August, and 1,200 cfs for September.

Inflows for the April through July period will be approximately 1,353,100 AF, which is 585,800 AF more than the most probable runoff condition. Seminoe Reservoir will reach its maximum end of month content for the year in July with approximately 910,400 AF in storage. This plan of operation would result in an end of year carryover storage of 831,300 AF, which would be 137 percent of average and 82 percent of active conservation capacity. Figure 12 depicts a comparison of Minimum, Most Probable, and Maximum Seminoe Inflows. Figure 13 depicts a comparison of Minimum, Most Probable, and Maximum Seminoe Storage.



**Figure 12** Seminoe Reservoir Inflow (Predicted for Water Year 2020)



**Figure 13** Seminole Reservoir Storage (Predicted for Water Year 2020)

## Pathfinder Reservoir

### Most Probable Condition - 2020

October through March -- Pathfinder Reservoir had a storage of 844,737 AF at the beginning of WY 2020, which is 173 percent of the 30-year average and 79 percent of active conservation capacity. Under this condition, gains to the river between Kortes Dam and Pathfinder Dam, including the Sweetwater River, are expected to be 31,600 AF for the October-March period. Fremont Canyon Powerplant releases will be reduced during October to allow Alcova Reservoir water surface level to be lowered to 5,488.0 plus or minus 1 foot, which is the normal elevation range for winter operation. After the Alcova winter operating range is reached, releases from Pathfinder Reservoir will be adjusted to meet Gray Reef Reservoir releases and maintain the Alcova Reservoir content between 153,800 and 158,300 AF. Pathfinder Reservoir storage is projected to be about 874,700 AF at the end of March.

April through September -- Pathfinder Reservoir storage will reach a maximum content of about 985,800 AF by the end of May and be drawn down to a storage content of about 830,900 AF by the end of the water year, which would be 170 percent of average. River gains between Kortes Dam and Pathfinder Dam, including the Sweetwater River, are estimated at about 73,500 AF for the April-July period. In April, Fremont Canyon Powerplant releases will be coordinated with Alcova releases to refill Alcova Reservoir to its normal summer operating range of 5,498 ± 1 foot.

April through September -- Fremont Canyon power releases will be scheduled to meet downstream irrigation deliveries and maintain Alcova Reservoir within the summer operating range. Pathfinder Reservoir water releases will increase in March to approximately 800 cfs, 900 cfs in April, 1,950 cfs in May, 3,000 cfs in June, and 3,300 cfs in July. Releases will decrease to 2,700 cfs for August, and approximately 1,675 cfs in September.

### **Reasonable Minimum Condition - 2020**

October through March -- Under this condition, river gains between Kortes Dam and Pathfinder Dam, including the Sweetwater River, are expected to be 13,300 AF for the October-March period. Pathfinder Reservoir storage will decline to about 856,600 AF by the end of March. Fremont Canyon Powerplant releases for the period will be scheduled to maintain approximately 156,000 AF of water in Alcova Reservoir.

April through September -- River gains between Kortes Dam and Pathfinder Dam, including the Sweetwater River, are estimated at about 19,900 AF for the April-July period under reasonable minimum inflow conditions. In April, releases will be coordinated with Alcova releases to refill Alcova Reservoir to its normal summer operating range of 5,498 ft plus or minus 1 foot by the end of April.

April through September -- Fremont Canyon power releases will be scheduled to meet downstream irrigation deliveries and maintain a storage content of approximately 179,400 AF in Alcova Reservoir. The highest Pathfinder Reservoir summer releases will be approximately 3,300 cfs, during July, and then reduced as irrigation demands drop off to end the water year at approximately 1,375 cfs during September. If reasonable minimum runoff develops, Pathfinder reservoir content at the end of the water year will be about 395,400 AF, which would be 81 percent of average and 37 percent of active conservation capacity.

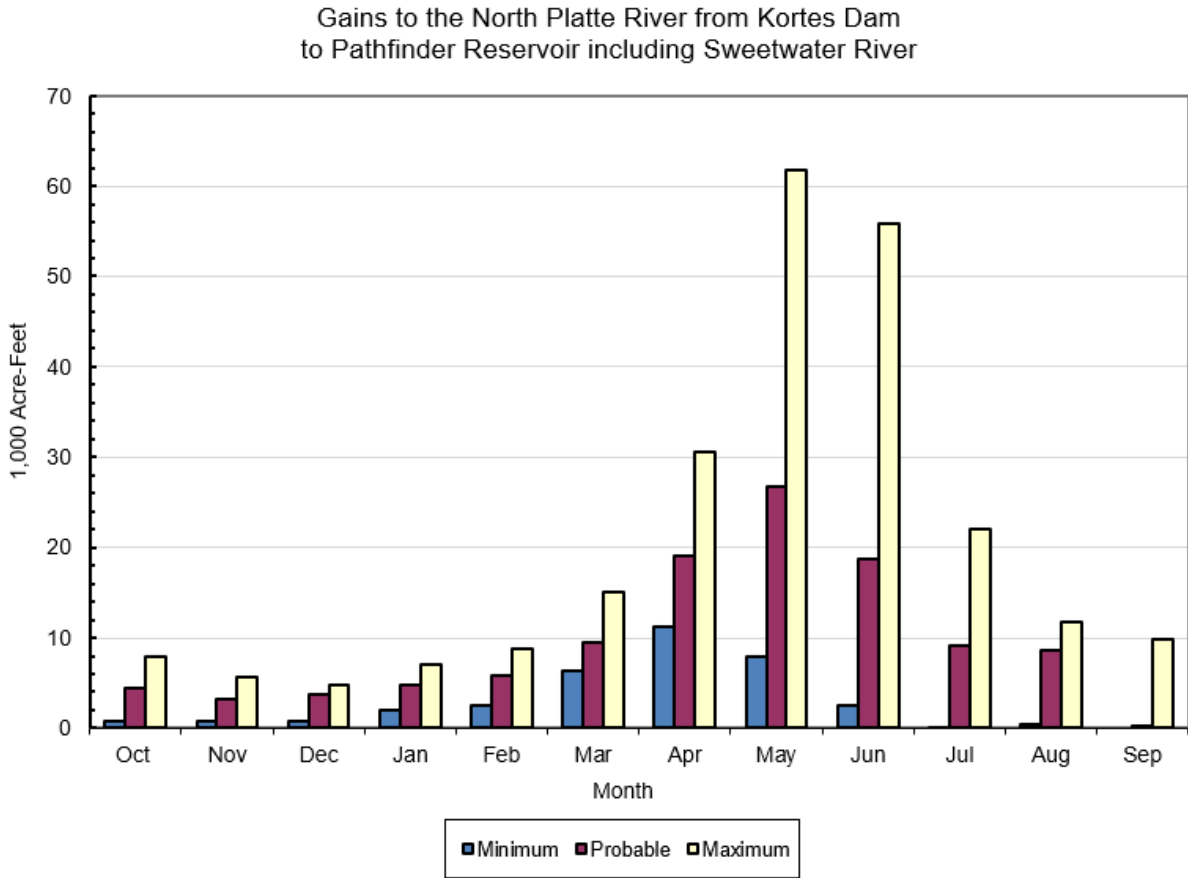
### **Reasonable Maximum Condition - 2020**

October through March -- Under this condition, river gains between Kortes Dam and Pathfinder Dam are expected to be 49,200 AF for the period. Pathfinder Reservoir content increases through this period from 873,200 AF at the end of October to 948,600 AF by the end of March.

April through September -- In April, water releases from Fremont Canyon Powerplant will be increased as Alcova Reservoir is refilled to water surface elevation 5498 plus or minus 1 foot. The rate of release will be increased through the summer as needed to meet downstream irrigation demands. Pathfinder Reservoir would reach a maximum content of 1,070,000 AF at the end of June. Releases will increase to approximately 2,850 cfs in March, 3,400 cfs in April and 5,000 cfs in May, and peaking at 5,200 cfs in June and July. They will decrease to approximately 3,750 cfs in August, 3,100 cfs in August and 1,900 cfs in September. The Pathfinder Reservoir end of year storage content is projected to be about 831,100 AF, which would be 170 percent of average, and 78 percent of capacity.

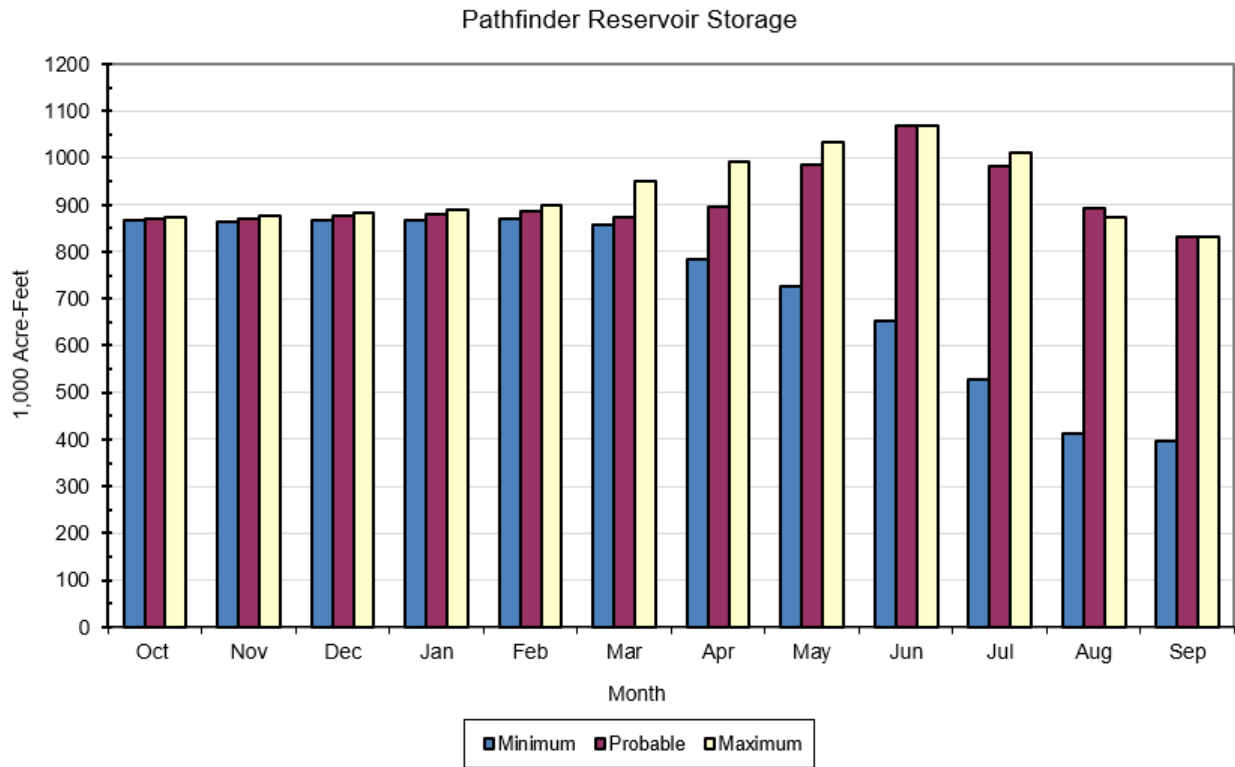
Under all three possible inflow conditions, a constant release of 75 cfs is planned from the Pathfinder Dam outlet works which will provide the necessary water to maintain a year-round fishery in the North Platte River below Pathfinder Reservoir. The maximum plan will require a bypass March through August from the jet flow gates below Pathfinder Dam.

Figure 14 depicts a comparison of Minimum, Most Probable, and Maximum river gains from Kortes Dam to Pathfinder Reservoir. Figure 15 depicts a comparison of Minimum, Most Probable, and Maximum Pathfinder Storage.



**Figure 14** Gains to the North Platte River from Kortes Dam to Pathfinder Reservoir (Predicted for Water Year 2020)





**Figure 15** Pathfinder Reservoir Storage (Predicted for Water Year 2020)

## **Alcova Reservoir**

### **Most Probable Condition - 2020**

October through March -- During October, Alcova Reservoir will be drawn down to the normal winter operating range of 5,488.0 plus or minus 1 foot and will be maintained there through March. The October through February releases for WY 2020 will be maintained at approximately 500 cfs. The releases will be used for production of power, maintenance of fishery flows, pollution abatement, and transfer of water to Glendo Reservoir in preparation for meeting downstream irrigation demands during the coming irrigation season. Provisions have been made in the plan to increase the releases from Alcova during March for a flushing flow below Gray Reef Reservoir.

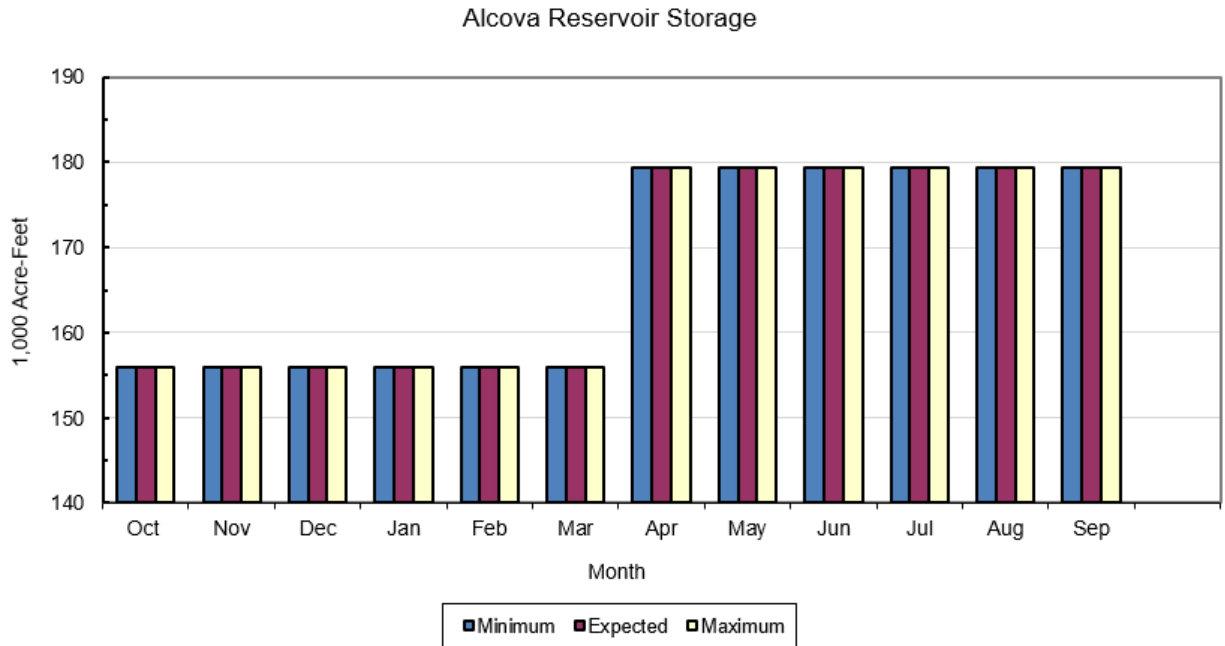
April through September -- During April, the reservoir will be refilled to water surface elevation 5,498 feet (179,400 AF). This level will be maintained within plus or minus 1 foot to provide the necessary water surface elevation to make irrigation deliveries to Casper Canal and for recreational purposes. Approximately 65,900 AF of water are scheduled to be delivered during the May-September period to meet Kendrick Project irrigation requirements. In addition, April releases to the river are scheduled to be approximately 29,700 AF and May-September releases to the river from Alcova Reservoir will total approximately 765,200 AF which will be re-regulated in Gray Reef Reservoir.

### **Reasonable Minimum Condition - 2020**

October through September -- Operation of Alcova Reservoir would be the same as under the most probable condition, with about 65,900 AF of water scheduled to be delivered during the May-September period to meet Kendrick Project irrigation requirements. April releases are scheduled to be approximately 89,300 AF and May-September releases to the North Platte River from Alcova Reservoir will total approximately 823,600 AF. Water released from Alcova Reservoir will be re-regulated in Gray Reef Reservoir.

### **Reasonable Maximum Condition - 2019**

October through September -- Operation of Alcova Reservoir would be the same as under the most probable condition, with about 65,900 AF of water are scheduled to be delivered during the May-September period to meet Kendrick Project irrigation requirements. March releases will be approximately 175,200 AF, and April releases will be approximately 178,500 AF. May-September releases to the North Platte River from Alcova Reservoir will total approximately 930,300 AF. Figure 16 depicts a comparison of Minimum, Most Probable, and Maximum Alcova Storage.



**Figure 16** Alcova Reservoir Storage (Predicted for Water Year 2020)

## Gray Reef Reservoir

### Most Probable Condition - 2020

October through March -- Releases October through February from Gray Reef Dam will be maintained at approximately 500 cfs. A flushing flow is planned below Gray Reef Dam during March.

April through September -- Releases from Gray Reef Reservoir will increase to 800 cfs for March, 500 cfs for April, approximately 1,775 cfs in May, and 2,750 cfs in June. Releases will increase to 3,000 cfs in July, and will be decreased to 2,475 cfs in August, and 1,500 cfs in September.

### Reasonable Minimum Condition - 2020

October through March -- Operation of Gray Reef Reservoir winter releases will be the same as under the most probable condition through March.

April through September -- Releases from Gray Reef Reservoir will be approximately 1,500 cfs in April, 2,250 cfs in May, 3,000 cfs in June, July, and August, then decreased to an average release of 1,200 cfs in September. These predicted flows may be redistributed as the irrigators adjust their use of water from storage.

### **Reasonable Maximum Condition - 2020**

October through March -- Operation of Gray Reef Reservoir winter releases will be the same as under the most probable condition through February and increasing to 2,850 cfs in March.

April through September -- The release from Gray Reef Reservoir will increase to approximately 3,000 cfs in April, approximately 4,800 May through July. The August releases will decrease to approximately 3,500 cfs, and 1,750 cfs in for September.

## **Glendo and Guernsey Reservoirs**

### **Most Probable Condition - 2020**

October through March -- Glendo Reservoir had a storage of 158,013 AF at the beginning of WY 2019, which is 121 percent of average and 32 percent of active conservation capacity of 492,022 AF. Glendo Reservoir storage will increase to approximately 421,800 AF by the end of March, which will be 110 percent of average and 86 percent of active conservation capacity.

A new area capacity table for Glendo Reservoir, based upon a recent silt survey was applied on September 30, 2012. This resulted in a reduced capacity with the top of active conservation being 492,022 AF at elevation 4,635 feet.

Guernsey Reservoir had storage of 5,781 AF at the beginning of WY 2019, which is 118 percent of average and 13 percent of active conservation capacity. Natural inflow will be stored during the winter which is expected to increase storage to 16,200 AF by March 31.

April through September -- During April, releases from Glendo Reservoir will be scheduled to refill Guernsey Reservoir. Maximum Glendo Reservoir storage will be about 491,000 AF by the end of June. Releases from Glendo Reservoir during the May through September period will be based upon meeting irrigation demand.

Guernsey Reservoir content will be maintained near 28,000 AF by the beginning of May through August. A silt run in July will require close coordination of Glendo and Guernsey release schedules as Guernsey Reservoir is drawn down to about 1,000 AF in July during the silt run and will be refilled to approximately 28,000 AF following the silt run. Releases for delivery of irrigation water will draw down Glendo Reservoir to about 150,000 AF by the end of September.

### **Reasonable Minimum Condition - 2020**

October through March -- Guernsey Reservoir had a storage of 5,781 AF at the beginning of WY 2019. Under the reasonable minimum inflow conditions, natural inflow will be stored during the winter which will increase the Guernsey Reservoir content to 14,900 AF by the end of March. Glendo Reservoir content will increase from the carryover storage of 158,013 AF to an end of March content of 399,600 AF.

April through September -- During April, releases from Glendo Reservoir will be scheduled to refill Guernsey Reservoir. Glendo Reservoir storage will increase to about 478,000 AF by the end of April which will be its highest level for the water year.

The operation of Glendo and Guernsey Reservoirs will be based upon making full irrigation deliveries to the Glendo Unit and approximately 100 percent of normal deliveries to North Platte Project. The total combined North Platte System reservoir storage would be approximately 43,200 AF lower than most probable conditions by the end of the water year under reasonable minimum water supply conditions.

Guernsey Reservoir content will be maintained near 28,000 AF during April through August. A silt run in July will require close coordination of Glendo and Guernsey release schedules. September releases will be made to meet irrigation requirements leaving 100,200 AF of water in Glendo Reservoir at the end of September. Guernsey Reservoir content will be 2,000 AF at the end of September.

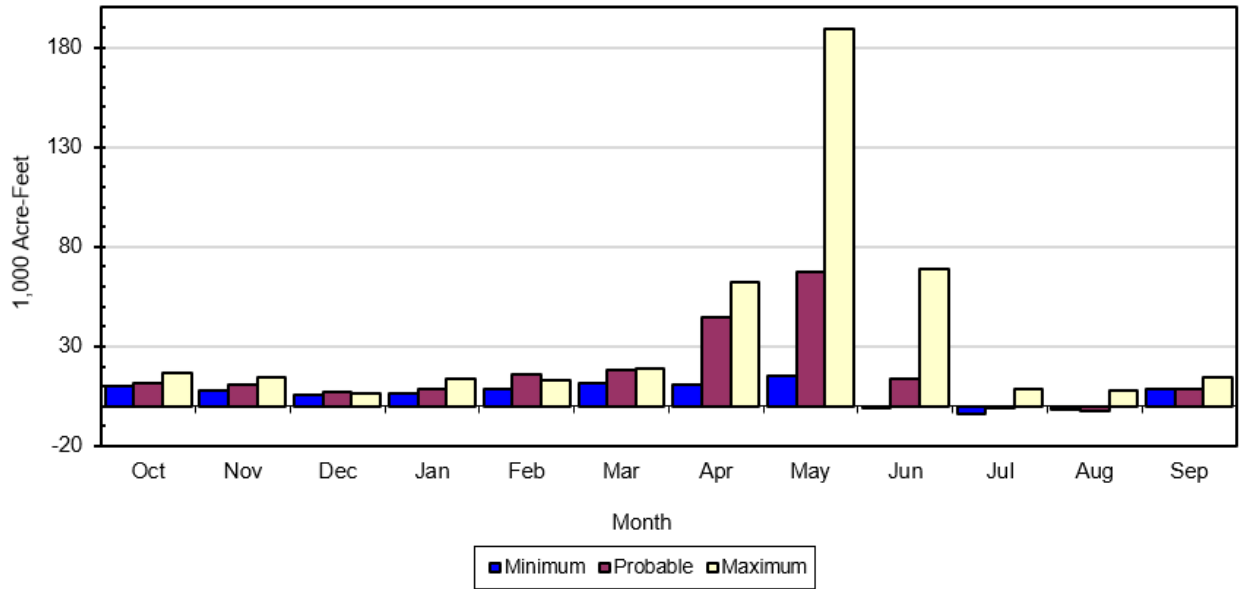
### **Reasonable Maximum Condition - 2020**

October through March -- Guernsey Reservoir had a storage of 5,781 AF at the beginning of WY 2019. Natural inflow will be stored during the winter which will increase Guernsey Reservoir content to 16,400 AF by the end of March. Glendo Reservoir content is expected to increase from the starting content of 158,013 AF to an end of March content of 283,600 AF.

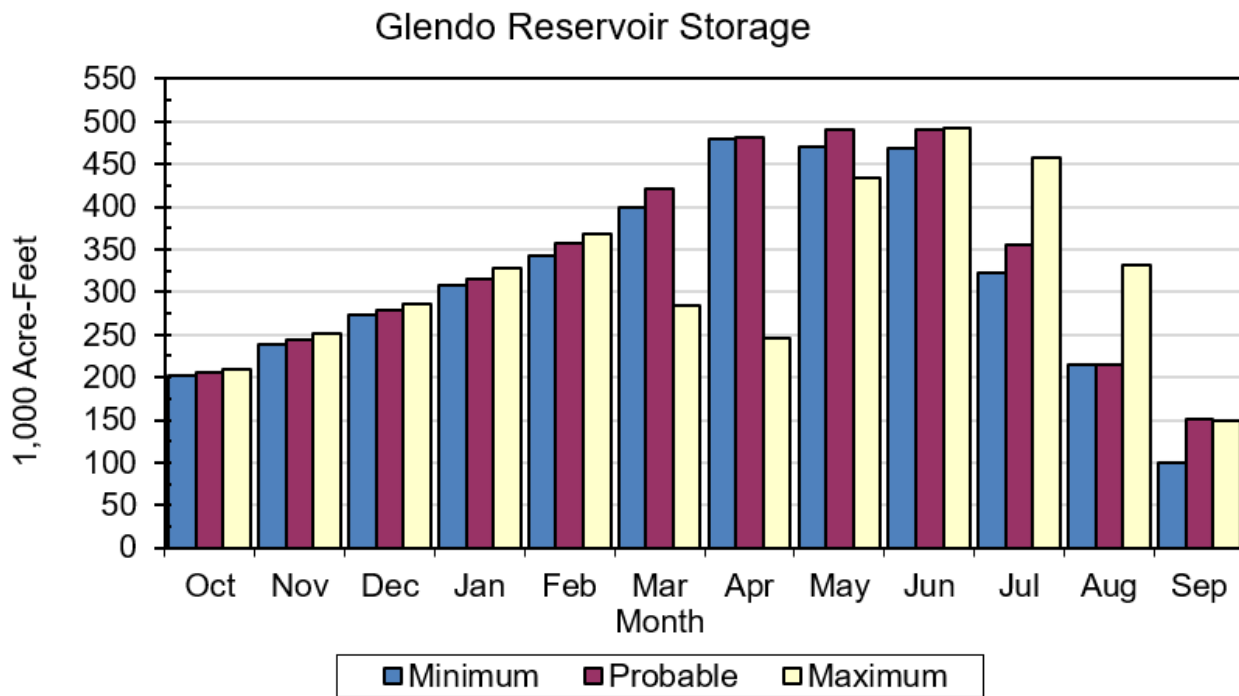
April through September -- Under maximum conditions, re-regulation water will be released as natural flow to meet irrigation demands until the supply is used as required. An annual total of 1,798,000 AF of water will be released from Guernsey Reservoir. Guernsey Reservoir will maintain a content of 28,000 AF in April and remain at that level through August. Under reasonable maximum conditions Glendo Reservoir will increase to peak storage of 492,000 AF in June. During September, releases will be scheduled to lower Guernsey Reservoir to approximately 2,000 AF. The operating plan shown assumes no downstream flow restrictions and normal irrigation deliveries. Glendo storage is projected to decrease to about 457,500 AF by the end of July and will be about 150,000 AF by the end of September. End of year Glendo storage would be 115 percent of average and the Total System storage at the end of the water year would be 1,999,700 AF, 139 percent of average.

Figure 17 depicts a comparison of Minimum, Most Probable, and Maximum river gains from Alcova Dam to Glendo Reservoir. Figure 18 depicts a comparison of Minimum, Most Probable, and Maximum Glendo Reservoir Storage.

Gains to the North Platte River from  
Alcova Dam to Glendo Reservoir



**Figure 17** Gains to North Platte River from Alcova Dam to Glendo Reservoir (Predicted for Water Year 2020)



**Figure 18** Glendo Reservoir Storage (Predicted for Water Year 2020)

## Ownerships

### Most Probable Condition - 2020

Stored water which is held in active conservation capacity accounts for various entities is referred to as their ownership. At the close of WY 2020, the North Platte Project storage ownership is expected to be at 701,900 AF (166 percent of average); the Kendrick Project storage ownership is expected to be at 1,122,900 AF (130 percent of average). Glendo storage ownership at the end of WY 2020 is expected to be 149,300 AF (114 percent of average).

### Reasonable Minimum Condition - 2020

The North Platte Project storage ownership is expected to be at 146,400 AF (35 percent of average) at the close of WY 2020. The Kendrick Project storage ownership is expected to be near 968,300 AF which is 112 percent of average at the close of the water year. The Kendrick Project ownership will not accrue any water under the reasonable minimum conditions, and Glendo storage ownership is expected to be 135,300 AF (103 percent of average) at the close of WY 2020.

### Reasonable Maximum Condition - 2020

Under reasonable maximum inflow conditions all storage water ownerships, in the North Platte River system, will fill during the WY 2020. About 228,100 AF will be captured in the reservoirs as re-regulation water in the North Platte System under maximum condition. The water in the re-regulation water account will be released from the System as natural flow to meet irrigation demands.

Figure 19 depicts a comparison of Minimum, Most Probable, and Maximum, Kendrick, North Platte Project, and Glendo Project Ownerships at the end of WY 2020.

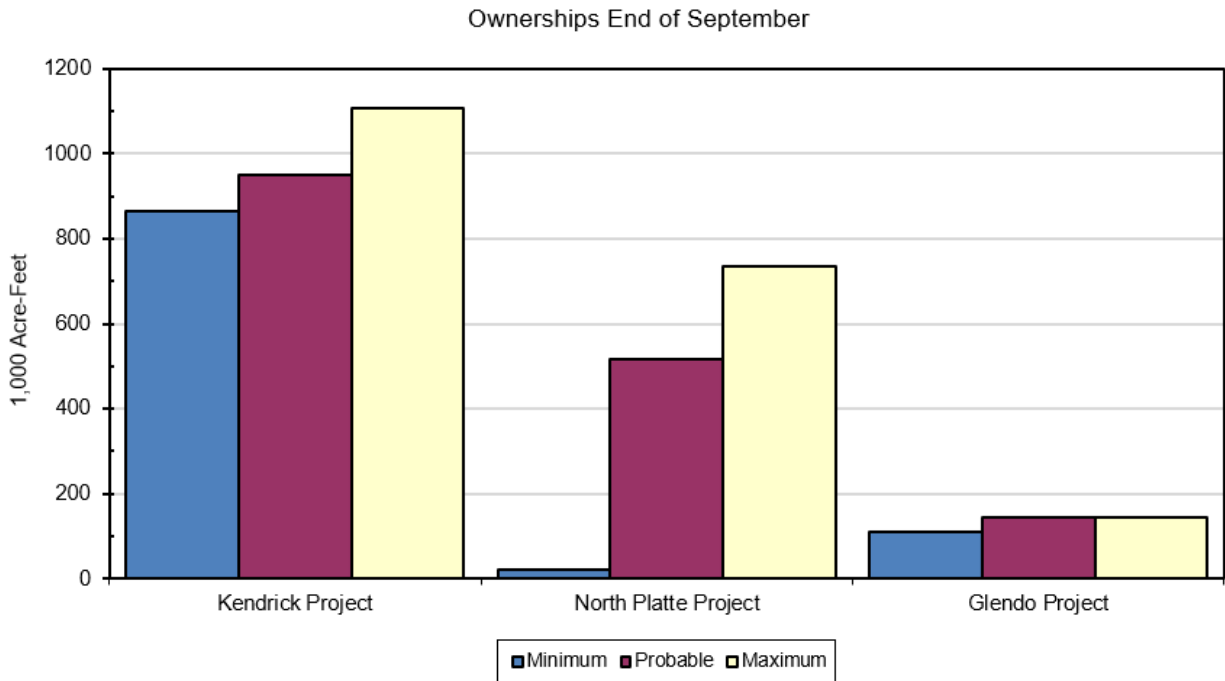


Figure 19 Ownerships at the End of September (Predicted for Water Year 2020)

## Most Probable Generation Water Year 2020

The most probable power generation breakdown for each powerplant.

Table 13 Most Probable Power Generation Water Year 2020

Powerplant	Gross generation <sup>1</sup> (GWh)	Percent of Average <sup>2</sup>
Seminole	153.700	123
Kortes	141.500	108
Fremont Canyon	253.800	119
Alcova	129.200	123
Glendo	98.200	122
Guernsey	19.200	114
Total Basin	795.500	119

<sup>1</sup> Gross generation is based on October 2020 storage and most probable inflow. Gross generation is reported in giga-watt hours (GWh).

<sup>2</sup> 30-year average (1990-2019)



The Facilities Management Division creates a schedule of maintenance for all generating units. See Table 14 for the maintenance schedule for WY 2020.

**Table 14** Proposed Generating Unit Maintenance Schedule (October 2019 through September 2020)

<b>Facility and Unit No.</b>	<b>Scheduled Period</b>	<b>Description of Work</b>
Seminole Unit #1	10-28-19 through 12-19-19	Annual Maintenance
Seminole Unit #2	10-01-19 through 10-31-19	Annual Maintenance
Seminole Unit #3	12-16-19 through 01-23-20	Annual Maintenance
Kortes Unit #1	11-04-19 through 12-17-19	Annual Maintenance
Kortes Unit #2	02-20-20 through 04-02-20	Annual Maintenance
Kortes Unit #3	01-06-20 through 02-16-20	Annual Maintenance
Fremont Unit #1	10-01-19 through 11-15-19	Annual Maintenance
Fremont Unit #2	11-18-19 through 01-02-20	Annual Maintenance
Alcova Unit #1	01-06-20 through 02-28-20	Annual Maintenance
Alcova Unit #2	03-03-20 through 04-06-20	Annual Maintenance
Glendo Unit #1	11-04-19 through 11-28-19	Annual Maintenance
Glendo Unit #2	01-06-20 through 01-30-20	Annual Maintenance
Guernsey Unit #1	12-02-19 through 01-23-20	Annual Maintenance
Guernsey Unit #2	12-02-19 through 01-16-20	Annual Maintenance

**Table 15** Most Probable Operating Plan for Water Year 2020

NPRAOP V1.1K 21-Mar-2003 Run: 2-Oct-2019 13:22

Based on Most Probable April - July Inflows: Seminole 767.3 kaf, Sweetwater 51.8 kaf, Glendo 126.3 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2019

HYDROLOGY OPERATIONS

Seminole Reservoir Operations		Initial Content					822.7 Kaf					Operating Limits: Max 1017.3 Kaf, 6357.00 Ft.				
							Min 31.7 Kaf, 6239.02 Ft.									
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep			
Total Inflow	kaf	29.8	28.1	24.4	22.3	24.1	54.6	112.4	241.8	318.7	94.4	34.8	33.8			
Total Inflow	cfs	485.	472.	397.	363.	419.	888.	1889.	3932.	5356.	1535.	566.	568.			
Turbine Release	kaf	32.7	31.5	32.6	32.6	30.5	32.6	62.0	186.6	177.1	123.3	81.0	47.9			
Jetflow Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	79.1	0.0	0.0	0.0			
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Release	kaf	32.7	31.5	32.6	32.6	30.5	32.6	62.0	192.7	256.2	123.3	81.0	47.9			
Total Release	cfs	532.	529.	530.	530.	530.	530.	1042.	3134.	4306.	2005.	1317.	805.			
Evaporation	kaf	4.8	2.6	1.4	1.4	1.4	2.8	5.6	5.7	9.6	10.7	8.8	6.2			
End-month content	kaf	815.7	812.2	803.3	792.1	784.9	804.9	850.0*	890.0*	944.0*	905.0*	850.7#	831.1*			
End-month elevation	ft	6346.2	6346.0	6345.5	6344.8	6344.4	6345.6	6348.2	6350.4	6353.3	6351.2	6348.2	6347.1			
Kortes Reservoir Operations		Initial Content					4.7 Kaf					Operating Limits: Max 4.8 Kaf, 6142.73 Ft.				
							Min 1.7 Kaf, 6092.73 Ft.									
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep			
Total Inflow	kaf	32.7	31.5	32.6	32.6	30.5	32.6	62.0	192.7	256.2	123.3	81.0	47.9			
Total Inflow	cfs	532.	529.	530.	530.	530.	530.	1042.	3134.	4306.	2005.	1317.	805.			
Turbine Release	kaf	32.6	31.5	32.6	32.6	30.5	32.6	62.0	160.5	155.3	123.3	81.0	47.9			
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.2	100.9	0.0	0.0	0.0			
Total Release	kaf	32.6	31.5	32.6	32.6	30.5	32.6	62.0	192.7	256.2	123.3	81.0	47.9			
Total Release	cfs	530.	529.	530.	530.	530.	530.	1042.	3134.	4306.	2005.	1317.	805.			
Min reservoir rels	cfs	530.	530.	530.	530.	530.	530.	1000.	1500.	1500.	528.	1317.	800.			
Max reservoir rels	cfs	530.	530.	530.	530.	530.	530.	5000.	5000.	5000.	3000.	3000.	1000.			
Pathfinder Reservoir Operations		Initial Content					844.7 Kaf					Operating Limits: Max 1095.0 Kaf, 5853.56 Ft.				
							Min 31.4 Kaf, 5746.00 Ft.									
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep			
Sweetwater Inflow	kaf	3.3	3.7	3.6	3.7	3.9	5.0	12.7	18.4	15.9	4.8	2.1	1.0			
Kortes-Path Gain	kaf	1.2	-0.5	0.2	1.0	2.0	4.5	6.3	8.3	2.8	4.3	6.6	-0.8			
Inflow from Kortes	kaf	32.6	31.5	32.6	32.6	30.5	32.6	62.0	192.7	256.2	123.3	81.0	47.9			
Total Inflow	kaf	37.1	34.7	36.4	37.3	36.4	42.1	81.0	219.4	274.9	132.4	89.7	48.1			
Total Inflow	cfs	603.	583.	592.	607.	633.	685.	1361.	3568.	4620.	2153.	1459.	808.			
Turbine Release	kaf	1.9	25.6	26.3	26.3	24.7	45.0	49.6	115.7	163.6	169.1	164.5	95.3			
Jetflow Release	kaf	4.6	4.5	4.6	4.6	4.3	4.6	4.5	4.6	14.4	35.4	4.6	4.5			
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Total Release	kaf	6.5	30.1	30.9	30.9	29.0	49.6	54.1	120.3	178.0	204.5	169.1	99.8			
Total Release	cfs	106.	506.	503.	503.	504.	807.	909.	1956.	2991.	3326.	2750.	1677.			
Evaporation	kaf	5.5	3.0	1.7	1.6	1.7	3.5	6.6	8.3	13.1	14.5	12.2	8.8			
End-month content	kaf	869.8	871.4	875.2	880.0	885.7	874.7	895.0	985.8	1069.6	983.0	891.4	830.9			
End-month elevation	ft	5843.1	5843.2	5843.4	5843.6	5843.9	5843.3	5844.4	5848.7	5852.5	5848.6	5844.2	5841.1			
Jetflow Release	cfs	75.	76.	75.	75.	75.	75.	76.	75.	242.	576.	75.	76.			
Min Release	cfs	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0			
Alcova Reservoir Operations		Initial Content					180.2 Kaf					Operating Limits: Max 184.4 Kaf, 5500.00 Ft.				
							Min 145.3 Kaf, 5483.12 Ft.									
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep			
Total Inflow	kaf	6.5	30.1	30.9	30.9	29.0	49.6	54.1	120.3	178.0	204.5	169.1	99.8			
Total Inflow	cfs	106.	506.	503.	503.	504.	807.	909.	1956.	2991.	3326.	2750.	1677.			
Turbine Release	kaf	30.1	29.8	30.7	30.7	28.8	49.2	29.8	109.8	163.3	184.6	152.2	89.4			
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Casper Canal Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	13.3	18.3	15.5	9.3			
Total Release	kaf	30.1	29.8	30.7	30.7	28.8	49.2	29.8	119.3	176.6	202.9	167.7	98.7			
Total Release	cfs	490.	501.	499.	499.	501.	800.	501.	1940.	2968.	3300.	2727.	1659.			
Evaporation	kaf	0.7	0.3	0.2	0.2	0.2	0.4	0.8	1.0	1.4	1.6	1.4	1.1			
End-month content	kaf	155.9*	155.9*	155.9*	155.9*	155.9*	155.9*	179.4*	179.4*	179.4*	179.4*	179.4*	179.4*			
End-month elevation	ft	5487.9	5487.9	5487.9	5487.9	5487.9	5487.9	5498.0	5498.0	5498.0	5498.0	5498.0	5498.0			

NORTH PLATTE RIVER OPERATING PLAN  
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Gray Reef Reservoir Operations		Initial Content						1.7 Kaf			Operating Limits: Max		1.1 Kaf, 5327.42 Ft.	
											Min		0.0 Kaf, 5306.00 Ft.	
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Total Inflow	kaf	30.1	29.8	30.7	30.7	28.8	49.2	29.8	109.8	163.3	184.6	152.2	89.4	
Total Inflow	cfs	490.	501.	499.	499.	501.	800.	501.	1786.	2744.	3002.	2475.	1502.	
Total Release	kaf	30.7	29.8	30.7	30.7	28.8	49.2	29.8	109.8	163.2	184.5	152.1	89.3	
Total Release	cfs	499.	501.	499.	499.	501.	800.	501.	1786.	2743.	3001.	2474.	1501.	
Min reservoir rels	cfs	500.	500.	500.	500.	500.	500.	500.	1785.	1467.	3000.	2300.	1500.	
Max reservoir rels	cfs	500.	500.	500.	500.	500.	800.	500.	3000.	2900.	3000.	3000.	1588.	
Glendo Reservoir Operations		Initial Content						166.4 Kaf			Operating Limits: Max		763.0 Kaf, 4653.00 Ft.	
											Min		63.2 Kaf, 4573.94 Ft.	
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Alcova-Glendo Gain	kaf	11.5	11.0	7.1	8.7	15.8	17.9	45.0	67.6	14.0	-0.3	-2.6	6.7	
Infl from Gray Reef	kaf	30.7	29.8	30.7	30.7	28.8	49.2	29.8	109.8	163.2	184.5	152.1	89.3	
Total Inflow	kaf	42.2	40.8	37.8	39.4	44.6	67.1	74.8	177.4	177.2	184.2	149.5	96.0	
Total Inflow	cfs	686.	686.	615.	641.	775.	1091.	1257.	2885.	2978.	2996.	2431.	1613.	
Turbine Release	kaf	0.7	0.0	0.0	0.0	0.0	0.0	9.6	163.1	167.6	231.5	221.4	156.0	
Low Flow Release	kaf	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Irrigation Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.1	59.6	0.0	
Total Release	kaf	2.2	1.5	1.5	1.5	1.4	1.5	11.1	164.6	169.1	313.1	282.5	157.5	
Total Release	cfs	36.	25.	24.	24.	24.	24.	187.	2677.	2842.	5092.	4594.	2647.	
Evaporation	kaf	1.4	0.9	0.8	0.9	1.0	1.9	3.3	5.1	7.0	6.9	4.9	2.8	
End-month content	kaf	205.0	243.4	278.9	315.9	358.1	421.8	482.2	489.9#	491.0*	354.8#	215.0*	150.7#	
End-month elevation	ft	4603.6	4608.9	4613.4	4617.8	4622.4	4628.8	4634.2	4634.8	4634.9	4622.1	4605.0	4594.8	
Guernsey Reservoir Operations		Initial Content						6.0 Kaf			Operating Limits: Max		45.6 Kaf, 4419.99 Ft.	
											Min		0.0 Kaf, 4370.00 Ft.	
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
Glendo-Guerns Gain	kaf	3.4	2.1	1.8	1.5	1.1	0.6	5.7	8.5	2.7	2.3	0.3	-0.1	
Inflow from Glendo	kaf	2.2	1.5	1.5	1.5	1.4	1.5	11.1	164.6	169.1	313.1	282.5	157.5	
Total Inflow	kaf	5.6	3.6	3.3	3.0	2.5	2.1	16.8	173.1	171.8	315.4	282.8	157.4	
Total Inflow	cfs	91.	60.	54.	49.	43.	34.	282.	2815.	2887.	5129.	4599.	2645.	
Turbine Release	kaf	4.4	0.0	0.0	0.0	0.0	0.0	9.6	54.0	51.8	53.6	53.6	55.8	
Seepage	kaf	0.3	0.2	0.3	0.3	0.2	0.3	0.4	1.2	3.0	3.1	2.5	0.3	
Spillway Release	kaf	2.7	0.0	0.0	0.0	0.0	0.0	0.0	111.7	116.0	257.6	225.8	126.8	
Total Release	kaf	7.4	0.2	0.3	0.3	0.2	0.3	10.0	166.9	170.8	314.3	281.9	182.9	
Total Release	cfs	120.	3.	5.	5.	3.	5.	168.	2714.	2870.	5112.	4585.	3074.	
Evaporation	kaf	0.1	0.2	0.2	0.2	0.2	0.3	0.5	0.7	1.0	1.1	0.9	0.5	
End-month content	kaf	4.1*	7.3#	10.1#	12.6#	14.7#	16.2#	22.5*	28.0*	28.0*	28.0*	28.0*	2.0*	
End-month elevation	ft	4393.0	4397.5	4400.4	4402.5	4404.1	4405.1	4409.0	4411.9	4411.9	4411.9	4411.9	4388.0	
Physical EOM Cont	kaf	2056.4	2096.1	2129.3	2162.4	2205.2	2279.4	2435.0	2579.0	2717.9	2456.1	2170.4	2000.0	

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2019

OWNERSHIP OPERATIONS

		Initial Ownership 669.7 Kaf, Accrued this water year: 0.0 Kaf											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
North Platte Pathfinder		Initial Ownership 669.7 Kaf, Accrued this water year: 0.0 Kaf											
Net Accrual	kaf	30.2	28.9	26.7	25.4	28.4	60.9	125.0	74.8	0.0	0.0	0.0	0.0
Evaporation	kaf	4.1	2.4	1.5	1.6	1.6	3.2	6.4	8.5	13.4	13.6	12.0	7.6
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	183.2	138.3
End-month Ownership	kaf	699.9	728.8	755.5	780.9	809.3	870.2	995.2	1070.0	1056.6	1043.0	847.8	701.9
North Platte Guernsey		Initial Ownership 0.0 Kaf, Accrued this water year: 0.0 Kaf											
Net Accrual	kaf	0.0	0.0	8.6	9.9	16.7	10.4	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.0	0.0	0.3	0.3	0.2	0.4	0.3	0.4	0.6	0.6	0.5	0.0
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.2	0.0
End-month Ownership	kaf	0.0	0.0	8.6	18.5	35.2	45.6	45.3	44.9	44.3	43.7	0.0	0.0
Inland Lakes		Initial Ownership 0.0 Kaf, Accrued this water year: 0.0 Kaf											
Net Accrual	kaf	14.9	12.8	0.0	0.0	0.0	0.0	18.3	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.0	0.3	0.1	0.1	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.0
Trnsfr fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.0	35.2	0.0	0.0	0.0	0.0
End-month Ownership	kaf	14.9	27.7	27.6	27.5	27.4	27.3	35.6	0.1	0.1	0.1	0.1	0.1
Kendrick		Initial Ownership 1121.6 Kaf, Accrued this water year: 0.0 Kaf											
Net Accrual	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	110.2	0.0	0.0	0.0	0.0
Evaporation	kaf	6.9	3.8	2.3	2.2	2.3	4.5	8.1	9.3	15.0	15.2	13.5	10.3
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5	9.3
End-month Ownership	kaf	1114.7	1110.9	1108.6	1106.4	1104.1	1099.6	1091.5	1201.7	1186.7	1171.5	1142.5	1122.9
Glendo Unit		Initial Ownership 165.2 Kaf, Accrued this water year: 0.0 Kaf											
Accrual	kaf	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	1.1	0.5	0.3	0.3	0.4	0.7	1.3	1.4	2.0	2.1	1.9	1.4
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	4.0
End-month Ownership	kaf	164.1	163.6	163.3	163.0	162.6	168.4	167.1	165.7	163.7	161.6	154.7	149.3
Re-regulation		Initial Ownership 45.7 Kaf, Accrued this water year: 0.0 Kaf											
Accrual	kaf	0.0	0.0	0.0	0.0	0.0	1.2	32.2	0.6	170.0	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.3	0.1	0.1	0.1	0.1	0.2	0.3	0.6	0.9	3.1	0.1	0.0
Release	kaf	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	227.1	9.3	0.0
End-month total	kaf	38.0	37.9	37.8	37.7	37.6	38.6	70.5	70.5	239.6	9.4	0.0	0.0

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2019  
Initial Ownership 7.6 Kaf,

City of Cheyenne  
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		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Inflow	kaf	0.7	2.5	0.7	0.5	0.6	0.8	0.3	0.6	2.7	1.1	0.7	0.7
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	1.6	0.5	0.0	0.0
Ownership	kaf	8.3	10.8	11.5	12.0	12.6	13.4	13.6	10.1	11.1	11.6	12.2	12.8

Pacificorp  
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Initial Ownership 2.0 Kaf,

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

IRRIGATION DELIVERY  
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Kendrick (Casper Canal)		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Requested	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	13.3	18.3	15.5	9.3
Delivered	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	13.3	18.3	15.5	9.3
Kendrick (River)		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Requested	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delivered	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guernsey Deliveries		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
North Platte Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	131.7	168.8	308.3	276.9	178.9
Glendo Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	6.0	5.0	4.0
Inland Lakes Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.0	35.2	0.0	0.0	0.0	0.0
Total Requirement	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.0	166.9	170.8	314.3	281.9	182.9
Seepage	kaf	0.3	0.2	0.3	0.3	0.2	0.3	0.4	1.2	3.0	3.1	2.5	0.3
Actual Release	kaf	7.4	0.2	0.3	0.3	0.2	0.3	10.0	166.9	170.8	314.3	281.9	182.9
Waste	kaf	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2019

POWER GENERATION

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
-----													
Seminoe Power Plant													
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Turbine Release	kaf	32.7	31.5	32.6	32.6	30.5	32.6	62.0	186.6	177.1	123.3	81.0	47.9
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	79.1	0.0	0.0	0.0
Maximum generation	gwh	33.243	32.155	33.304	33.443	31.310	33.478	32.165	32.940	31.555	32.635	32.922	32.109
Actual generation	gwh	5.706	5.481	5.672	5.672	5.291	5.672	10.850	32.940	31.555	22.061	14.337	8.414
Percent max generation		17.	17.	17.	17.	17.	17.	34.	100.	100.	68.	44.	26.
Average kwh/af		174.	174.	174.	174.	173.	174.	175.	177.	178.	179.	177.	176.
-----													
Kortes Power Plant													
-----													
Turbine Release	kaf	32.6	31.5	32.6	32.6	30.5	32.6	62.0	160.5	155.3	123.3	81.0	47.9
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.2	100.9	0.0	0.0	0.0
Maximum generation	gwh	28.346	26.712	27.606	27.606	25.817	27.606	26.712	27.606	26.712	27.606	27.606	26.712
Actual generation	gwh	5.607	5.418	5.607	5.607	5.246	5.607	10.664	27.606	26.712	21.208	13.932	8.239
Percent max generation		20.	20.	20.	20.	20.	20.	40.	100.	100.	77.	50.	31.
Average kwh/af		172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.
-----													
Fremont Canyon													
-----													
Turbine Release	kaf	1.9	25.6	26.3	26.3	24.7	45.0	49.6	115.7	163.6	169.1	164.5	95.3
Bypass	kaf	4.6	4.5	4.6	4.6	4.3	4.6	4.5	4.6	14.4	35.4	4.6	4.5
Maximum generation	gwh	47.220	45.693	47.231	47.235	44.193	47.236	45.703	47.280	45.802	47.341	47.277	45.687
Actual generation	gwh	0.531	7.150	7.346	7.346	6.900	12.570	13.856	32.349	45.802	47.341	45.991	26.613
Percent max generation		1.	16.	16.	16.	16.	27.	30.	68.	100.	100.	97.	58.
Average kwh/af		279.	279.	279.	279.	279.	279.	279.	280.	280.	280.	280.	279.
-----													
Alcova Power Plant													
-----													
Turbine Release	kaf	30.1	29.8	30.7	30.7	28.8	49.2	29.8	109.8	163.3	184.6	152.2	89.4
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum generation	gwh	27.172	26.588	27.472	27.472	25.704	27.472	26.275	27.552	26.656	27.552	27.552	26.656
Actual generation	gwh	4.156	4.053	4.175	4.175	3.917	6.691	4.112	15.372	22.862	25.844	21.308	12.516
Percent max generation		15.	15.	15.	15.	15.	24.	16.	56.	86.	94.	77.	47.
Average kwh/af		138.	136.	136.	136.	136.	136.	138.	140.	140.	140.	140.	140.
-----													
Glendo Power Plant													
-----													
Turbine Release	kaf	0.7	0.0	0.0	0.0	0.0	0.0	9.6	163.1	167.6	231.5	221.4	156.0
Bypass	kaf	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	81.6	61.1	1.5
Maximum generation	gwh	1.752	0.000	0.000	0.000	0.000	0.000	25.357	27.225	26.468	25.362	21.356	16.788
Actual generation	gwh	0.056	0.000	0.000	0.000	0.000	0.000	1.073	18.665	19.237	25.362	21.356	12.441
Percent max generation		3.	0.	0.	0.	0.	0.	4.	69.	73.	100.	100.	74.
Average kwh/af		80.	0.	0.	0.	0.	0.	112.	114.	115.	110.	96.	80.
-----													
Guernsey Power Plant													
-----													
Turbine Release	kaf	4.4	0.0	0.0	0.0	0.0	0.0	9.6	54.0	51.8	53.6	53.6	55.8
Bypass	kaf	3.0	0.2	0.3	0.3	0.2	0.3	0.4	112.9	119.0	260.7	228.3	127.1
Maximum generation	gwh	0.203	0.000	0.000	0.000	0.000	0.000	3.542	3.734	3.667	3.795	3.795	3.404
Actual generation	gwh	0.203	0.000	0.000	0.000	0.000	0.000	0.627	3.734	3.667	3.795	3.795	3.404
Percent max generation		100.	0.	0.	0.	0.	0.	18.	100.	100.	100.	100.	100.
Average kwh/af		46.	0.	0.	0.	0.	0.	65.	69.	71.	71.	71.	61.

**Table 16** Reasonable Minimum Operating Plan for Water Year 2020

NPRAOP V1.1K 21-Mar-2003 Run: 2-Oct-2019 13:21

Based on Reasonable Minimum April - July Inflows: Seminole 339.3 kaf, Sweetwater 21.3 kaf, Glendo 21.8 kaf

**NORTH PLATTE RIVER OPERATING PLAN**  
Year Beginning Oct 2019

**HYDROLOGY OPERATIONS**

Seminole Reservoir Operations		Initial Content 822.7 Kaf						Operating Limits: Max 1017.3 Kaf, 6357.00 Ft. Min 31.7 Kaf, 6239.02 Ft.					
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Total Inflow	kaf	22.1	21.6	20.8	18.5	20.6	43.4	69.7	117.0	120.2	32.4	18.9	13.3
Total Inflow	cfs	359.	363.	338.	301.	358.	706.	1171.	1903.	2020.	527.	307.	224.
Turbine Release	kaf	32.7	31.5	32.6	32.6	30.5	32.6	35.7	92.2	126.6	90.5	90.6	71.1
Jetflow Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Release	kaf	32.7	31.5	32.6	32.6	30.5	32.6	35.7	92.2	126.6	90.5	90.6	71.1
Total Release	cfs	532.	529.	530.	530.	530.	530.	600.	1499.	2128.	1472.	1473.	1195.
Evaporation	kaf	4.7	2.5	1.4	1.3	1.3	2.8	5.4	5.4	8.6	9.2	7.3	4.9
End-month content	kaf	808.1	798.2	785.7	770.8	760.2	769.0	797.9	813.9	800.0*	733.3	655.0*	593.0*
End-month elevation	ft	6345.7	6345.2	6344.4	6343.5	6342.8	6343.4	6345.1	6346.1	6345.3	6341.1	6335.9	6331.4

Kortes Reservoir Operations		Initial Content 4.7 Kaf						Operating Limits: Max 4.8 Kaf, 6142.73 Ft. Min 1.7 Kaf, 6092.73 Ft.					
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Total Inflow	kaf	32.7	31.5	32.6	32.6	30.5	32.6	35.7	92.2	126.6	90.5	90.6	71.1
Total Inflow	cfs	532.	529.	530.	530.	530.	530.	600.	1499.	2128.	1472.	1473.	1195.
Turbine Release	kaf	32.6	31.5	32.6	32.6	30.5	32.6	35.7	92.2	126.6	90.5	90.6	71.1
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Release	kaf	32.6	31.5	32.6	32.6	30.5	32.6	35.7	92.2	126.6	90.5	90.6	71.1
Total Release	cfs	530.	529.	530.	530.	530.	530.	600.	1499.	2128.	1472.	1473.	1195.
Min reservoir rels	cfs	528.	528.	528.	528.	528.	528.	528.	528.	528.	800.	800.	665.
Max reservoir rels	cfs	530.	530.	530.	530.	530.	530.	600.	1500.	3000.	3000.	3000.	3000.

Pathfinder Reservoir Operations		Initial Content 844.7 Kaf						Operating Limits: Max 1095.0 Kaf, 5853.56 Ft. Min 31.4 Kaf, 5746.00 Ft.					
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Sweetwater Inflow	kaf	1.9	2.3	2.1	1.9	1.9	3.7	8.9	6.0	4.9	1.5	0.9	0.7
Kortes-Path Gain	kaf	-1.1	-1.5	-1.4	0.1	0.7	2.7	2.4	1.9	-2.3	-3.4	-0.5	-0.7
Inflow from Kortes	kaf	32.6	31.5	32.6	32.6	30.5	32.6	35.7	92.2	126.6	90.5	90.6	71.1
Total Inflow	kaf	33.4	32.3	33.3	34.6	33.1	39.0	47.0	100.1	129.2	88.6	91.0	71.1
Total Inflow	cfs	543.	543.	542.	563.	575.	634.	790.	1628.	2171.	1441.	1480.	1195.
Turbine Release	kaf	1.9	25.6	26.3	26.3	24.7	45.0	109.1	144.2	163.6	169.1	169.1	78.0
Jetflow Release	kaf	4.6	4.5	4.6	4.6	4.3	4.6	4.5	4.6	29.7	35.2	32.1	4.5
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Release	kaf	6.5	30.1	30.9	30.9	29.0	49.6	113.6	148.8	193.3	204.3	201.2	82.5
Total Release	cfs	106.	506.	503.	503.	504.	807.	1909.	2420.	3249.	3323.	3272.	1386.
Evaporation	kaf	5.6	3.1	1.7	1.7	1.7	3.4	6.2	7.1	9.8	9.5	6.9	4.6
End-month content	kaf	866.0	865.1	865.8	867.8	870.2	856.2	783.4	727.6	653.7	528.5	411.4	395.4
End-month elevation	ft	5842.9	5842.9	5842.9	5843.0	5843.1	5842.4	5838.6	5835.4	5831.0	5822.3	5812.4	5810.8
Jetflow Release	cfs	75.	76.	75.	75.	75.	75.	76.	75.	499.	572.	522.	76.
Min Release	cfs	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0

Alcova Reservoir Operations		Initial Content 180.2 Kaf						Operating Limits: Max 184.4 Kaf, 5500.00 Ft. Min 145.3 Kaf, 5483.12 Ft.					
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Total Inflow	kaf	6.5	30.1	30.9	30.9	29.0	49.6	113.6	148.8	193.3	204.3	201.2	82.5
Total Inflow	cfs	106.	506.	503.	503.	504.	807.	1909.	2420.	3249.	3323.	3272.	1386.
Turbine Release	kaf	30.1	29.8	30.7	30.7	28.8	49.2	89.3	138.3	178.6	184.4	184.3	72.1
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Casper Canal Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	13.3	18.3	15.5	9.3
Total Release	kaf	30.1	29.8	30.7	30.7	28.8	49.2	89.3	147.8	191.9	202.7	199.8	81.4
Total Release	cfs	490.	501.	499.	499.	501.	800.	1501.	2404.	3225.	3297.	3249.	1368.
Evaporation	kaf	0.7	0.3	0.2	0.2	0.2	0.4	0.8	1.0	1.4	1.6	1.4	1.1
End-month content	kaf	155.9*	155.9*	155.9*	155.9*	155.9*	155.9*	179.4*	179.4*	179.4*	179.4*	179.4*	179.4*
End-month elevation	ft	5487.9	5487.9	5487.9	5487.9	5487.9	5487.9	5498.0	5498.0	5498.0	5498.0	5498.0	5498.0

Based on Reasonable Minimum April - July Inflows: Seminole 339.3 kaf, Sweetwater 21.3 kaf, Glendo 21.8 kaf

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Gray Reef Reservoir Operations		Initial Content					1.7 Kaf					Operating Limits: Max		1.1 Kaf, 5327.42 Ft.			
-----		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Jul	Aug	Sep	0.0 Kaf, 5306.00 Ft.		
Total Inflow	kaf	30.1	29.8	30.7	30.7	28.8	49.2	89.3	138.3	178.6	184.4	184.3	72.1				
Total Inflow	cfs	490.	501.	499.	499.	501.	800.	1501.	2249.	3001.	2999.	2997.	1212.				
Total Release	kaf	30.7	29.8	30.7	30.7	28.8	49.2	89.3	138.3	178.5	184.3	184.2	72.0				
Total Release	cfs	499.	501.	499.	499.	501.	800.	1501.	2249.	3000.	2997.	2996.	1210.				
Min reservoir rels	cfs	500.	500.	500.	500.	500.	800.	500.	500.	1000.	2000.	1500.	1200.				
Max reservoir rels	cfs	500.	500.	500.	500.	500.	800.	1500.	2250.	3000.	3000.	3000.	1210.				
Glendo Reservoir Operations		Initial Content					166.4 Kaf					Operating Limits: Max		763.0 Kaf, 4653.00 Ft.			
-----		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Jul	Aug	Sep	63.2 Kaf, 4573.94 Ft.		
Alcova-Glendo Gain	kaf	10.1	8.2	5.9	6.3	8.4	11.8	10.8	15.3	-0.6	-3.7	-1.6	8.4				
Infl from Gray Reef	kaf	30.7	29.8	30.7	30.7	28.8	49.2	89.3	138.3	178.5	184.3	184.2	72.0				
Total Inflow	kaf	40.8	38.0	36.6	37.0	37.2	61.0	100.1	153.6	177.9	180.6	182.6	80.4				
Total Inflow	cfs	664.	639.	595.	602.	647.	992.	1682.	2498.	2990.	2937.	2970.	1351.				
Turbine Release	kaf	1.6	0.0	0.0	0.0	0.0	0.0	16.3	155.9	171.7	228.7	221.4	191.2				
Low Flow Release	kaf	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5				
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Irrigation Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	88.1	61.3	0.0				
Total Release	kaf	3.1	1.5	1.5	1.5	1.4	1.5	17.8	157.4	173.2	318.3	284.2	192.7				
Total Release	cfs	50.	25.	24.	24.	24.	24.	299.	2560.	2911.	5177.	4622.	3238.				
Evaporation	kaf	1.4	0.9	0.8	0.9	1.0	1.9	3.1	5.0	6.7	6.7	4.7	2.5				
End-month content	kaf	202.7	238.3	272.6	307.2	342.0	399.6	478.8	470.0	468.0#	323.2	215.0*	100.2#				
End-month elevation	ft	4603.2	4608.2	4612.6	4616.8	4620.7	4626.6	4633.9	4633.1	4633.0	4618.6	4605.0	4584.1				
Guernsey Reservoir Operations		Initial Content					6.0 Kaf					Operating Limits: Max		45.6 Kaf, 4419.99 Ft.			
-----		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	Jul	Aug	Sep	0.0 Kaf, 4370.00 Ft.		
Glendo-Guerns Gain	kaf	2.2	1.5	1.2	1.0	1.2	1.2	0.3	2.6	-1.4	-2.9	-1.4	2.1				
Inflow from Glendo	kaf	3.1	1.5	1.5	1.5	1.4	1.5	17.8	157.4	173.2	318.3	284.2	192.7				
Total Inflow	kaf	5.3	3.0	2.7	2.5	2.6	2.7	18.1	160.0	171.8	315.4	282.8	194.8				
Total Inflow	cfs	86.	50.	44.	41.	45.	44.	304.	2602.	2887.	5129.	4599.	3274.				
Turbine Release	kaf	4.4	0.0	0.0	0.0	0.0	0.0	9.6	54.0	51.8	53.6	53.6	55.8				
Seepage	kaf	0.3	0.2	0.3	0.3	0.2	0.3	0.4	1.2	3.0	3.1	2.5	0.3				
Spillway Release	kaf	2.7	0.0	0.0	0.0	0.0	0.0	0.0	98.6	116.0	257.6	225.8	164.2				
Total Release	kaf	7.4	0.2	0.3	0.3	0.2	0.3	10.0	153.8	170.8	314.3	281.9	220.3				
Total Release	cfs	120.	3.	5.	5.	3.	5.	168.	2501.	2870.	5112.	4585.	3702.				
Evaporation	kaf	0.1	0.2	0.2	0.2	0.2	0.3	0.5	0.7	1.0	1.1	0.9	0.5				
End-month content	kaf	3.8*	6.4#	8.6#	10.6#	12.8#	14.9#	22.5*	28.0*	28.0*	28.0*	28.0*	2.0*				
End-month elevation	ft	4392.4	4396.4	4398.9	4400.8	4402.7	4404.2	4409.0	4411.9	4411.9	4411.9	4411.9	4388.0				
Physical EOM Cont	kaf	2042.4	2069.8	2094.5	2118.2	2147.0	2201.5	2267.9	2224.8	2135.0	1798.3	1494.7	1275.9				



NORTH PLATTE RIVER OPERATING PLAN  
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OWNERSHIP OPERATIONS

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
North Platte Pathfinder		Initial Ownership 669.7 Kaf, Accrued this water year: 0.0 Kaf											
Net Accrual	kaf	18.8	20.0	20.0	19.0	21.6	46.6	75.1	3.5	0.0	0.0	0.0	0.0
Evaporation	kaf	4.1	2.4	1.5	1.5	1.6	3.2	5.9	7.6	11.1	11.7	7.2	3.2
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	261.6	260.6	192.5
End-month Ownership	kaf	688.5	708.5	728.5	747.5	769.1	815.7	890.8	894.3	883.2	609.9	342.1	146.4
North Platte Guernsey		Initial Ownership 0.0 Kaf, Accrued this water year: 0.0 Kaf											
Net Accrual	kaf	0.0	0.0	6.8	7.0	9.4	12.6	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.0	0.0	0.3	0.3	0.2	0.4	0.3	0.3	0.4	0.3	0.0	0.0
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.7	22.8	0.0	0.0
End-month Ownership	kaf	0.0	0.0	6.8	13.8	23.2	35.8	35.5	35.2	23.1	0.0	0.0	0.0
Inland Lakes		Initial Ownership 0.0 Kaf, Accrued this water year: 0.0 Kaf											
Net Accrual	kaf	12.3	9.5	0.0	0.0	0.0	0.0	11.0	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.0	0.2	0.1	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0
Trnsfr fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.0	22.1	0.0	0.0	0.0	0.0
End-month Ownership	kaf	12.3	21.8	21.7	21.7	21.7	21.6	22.6	0.3	0.3	0.3	0.3	0.3
Kendrick		Initial Ownership 1121.6 Kaf, Accrued this water year: 0.0 Kaf											
Net Accrual	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	6.9	3.8	2.3	2.3	2.3	4.5	8.0	9.2	13.3	13.8	12.0	9.0
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	13.3	18.3	15.5	9.3
End-month Ownership	kaf	1114.7	1110.9	1108.6	1106.3	1104.0	1099.5	1091.5	1072.8	1046.2	1014.1	986.6	968.3
Glendo Unit		Initial Ownership 165.2 Kaf, Accrued this water year: 0.0 Kaf											
Accrual	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	1.1	0.5	0.3	0.3	0.3	0.7	1.2	1.4	2.0	2.0	1.8	1.3
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	6.0	5.0	4.0
End-month Ownership	kaf	164.1	163.6	163.3	163.0	162.7	162.0	160.8	159.4	155.4	147.4	140.6	135.3
Re-regulation		Initial Ownership 45.7 Kaf, Accrued this water year: 0.0 Kaf											
Accrual	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.3	0.2	0.1	0.1	0.1	0.1	0.3	0.3	0.5	0.0	0.0	0.0
Release	kaf	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.3	0.0	0.0	0.0
End-month total	kaf	38.0	37.8	37.7	37.6	37.5	37.4	37.1	36.8	0.0	0.0	0.0	0.0

NPRAOP V1.1K 21-Mar-2003 Run: 2-Oct-2019 13:21  
 Based on Reasonable Minimum April - July Inflows: Seminoe 339.3 kaf, Sweetwater 21.3 kaf, Glendo 21.8 kaf

NORTH PLATTE RIVER OPERATING PLAN  
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City of Cheyenne		Initial Ownership 7.6 Kaf,											
-----		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Inflow	kaf	0.7	2.5	0.7	0.5	0.6	0.8	0.3	0.6	2.7	1.1	0.7	0.7
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	1.6	0.5	0.0	0.0
Ownership	kaf	8.3	10.8	11.5	12.0	12.6	13.4	13.6	10.1	11.1	11.5	12.1	12.7
Pacificorp		Initial Ownership 2.0 Kaf,											
-----		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ownership	kaf	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Other		Initial Ownership 14.6 Kaf,											
-----		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.9	0.0
Ownership	kaf	14.5	14.4	14.4	14.3	14.2	14.1	14.0	13.9	13.7	13.1	11.0	10.9

IRRIGATION DELIVERY  
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Kendrick (Casper Canal)		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Requested	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	13.3	18.3	15.5	9.3
Delivered	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	13.3	18.3	15.5	9.3
Kendrick (River)		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Requested	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delivered	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guernsey Deliveries		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
North Platte Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	131.7	168.8	308.3	276.9	216.3
Glendo Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	6.0	5.0	4.0
Inland Lakes Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.0	22.1	0.0	0.0	0.0	0.0
Total Requirement	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.0	153.8	170.8	314.3	281.9	220.3
Seepage	kaf	0.3	0.2	0.3	0.3	0.2	0.3	0.4	1.2	3.0	3.1	2.5	0.3
Actual Release	kaf	7.4	0.2	0.3	0.3	0.2	0.3	10.0	153.8	170.8	314.3	281.9	220.3
Waste	kaf	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NORTH PLATTE RIVER OPERATING PLAN  
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POWER GENERATION

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
-----													
Seminole Power Plant													
Turbine Release	kaf	32.7	31.5	32.6	32.6	30.5	32.6	35.7	92.2	126.6	90.5	90.6	71.1
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum generation	gwh	33.224	32.294	33.475	33.405	31.321	33.488	32.362	33.338	32.242	33.471	33.367	31.032
Actual generation	gwh	5.694	5.481	5.666	5.622	5.246	5.607	6.175	16.043	22.028	15.566	15.229	11.668
Percent max generation		17.	17.	17.	17.	17.	17.	19.	48.	68.	47.	46.	38.
Average kwh/af		174.	174.	174.	172.	172.	172.	173.	174.	174.	172.	168.	164.
-----													
Kortes Power Plant													
Turbine Release	kaf	32.6	31.5	32.6	32.6	30.5	32.6	35.7	92.2	126.6	90.5	90.6	71.1
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum generation	gwh	28.346	26.712	27.606	27.606	25.817	27.606	26.712	27.606	26.712	27.606	27.606	26.712
Actual generation	gwh	5.607	5.418	5.607	5.607	5.246	5.607	6.140	15.858	21.775	15.566	15.583	12.229
Percent max generation		20.	20.	20.	20.	20.	20.	23.	57.	82.	56.	56.	46.
Average kwh/af		172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.
-----													
Fremont Canyon													
Turbine Release	kaf	1.9	25.6	26.3	26.3	24.7	45.0	109.1	144.2	163.6	169.1	169.1	78.0
Bypass	kaf	4.6	4.5	4.6	4.6	4.3	4.6	4.5	4.6	29.7	35.2	32.1	4.5
Maximum generation	gwh	47.219	45.690	47.226	47.227	44.184	47.224	45.658	46.778	44.690	45.129	43.695	41.435
Actual generation	gwh	0.531	7.150	7.345	7.345	6.899	12.567	30.448	39.890	44.690	45.129	43.695	19.755
Percent max generation		1.	16.	16.	16.	16.	27.	67.	85.	100.	100.	100.	48.
Average kwh/af		279.	279.	279.	279.	279.	279.	279.	277.	273.	267.	258.	253.
-----													
Alcova Power Plant													
Turbine Release	kaf	30.1	29.8	30.7	30.7	28.8	49.2	89.3	138.3	178.6	184.4	184.3	72.1
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum generation	gwh	27.172	26.588	27.472	27.472	25.704	27.472	26.275	27.552	26.656	27.552	27.552	26.656
Actual generation	gwh	4.156	4.053	4.175	4.175	3.917	6.691	12.323	19.362	25.004	25.816	25.802	10.094
Percent max generation		15.	15.	15.	15.	15.	24.	47.	70.	94.	94.	94.	38.
Average kwh/af		138.	136.	136.	136.	136.	136.	138.	140.	140.	140.	140.	140.
-----													
Glendo Power Plant													
Turbine Release	kaf	1.6	0.0	0.0	0.0	0.0	0.0	16.3	155.9	171.7	228.7	221.4	191.2
Bypass	kaf	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	89.6	62.8	1.5
Maximum generation	gwh	1.747	0.000	0.000	0.000	0.000	0.000	25.000	26.874	25.848	24.572	20.875	15.369
Actual generation	gwh	0.128	0.000	0.000	0.000	0.000	0.000	1.806	17.700	19.422	24.572	20.875	14.196
Percent max generation		7.	0.	0.	0.	0.	0.	7.	66.	75.	100.	100.	92.
Average kwh/af		80.	0.	0.	0.	0.	0.	111.	114.	113.	107.	94.	74.
-----													
Guernsey Power Plant													
Turbine Release	kaf	4.4	0.0	0.0	0.0	0.0	0.0	9.6	54.0	51.8	53.6	53.6	55.8
Bypass	kaf	3.0	0.2	0.3	0.3	0.2	0.3	0.4	99.8	119.0	260.7	228.3	164.5
Maximum generation	gwh	0.201	0.000	0.000	0.000	0.000	0.000	3.520	3.734	3.667	3.795	3.795	3.404
Actual generation	gwh	0.201	0.000	0.000	0.000	0.000	0.000	0.621	3.734	3.667	3.795	3.795	3.404
Percent max generation		100.	0.	0.	0.	0.	0.	18.	100.	100.	100.	100.	100.
Average kwh/af		46.	0.	0.	0.	0.	0.	65.	69.	71.	71.	71.	61.

**Table 17** Reasonable Maximum Operating Plan for Water Year 2020

NPRAOP V1.1K 21-Mar-2003 Run: 2-Oct-2019 13:22

Based on Reasonable Maximum April - July Inflow: Seminoe 1353.1 kaf, Sweetwater 122.5 kaf, Glendo 328.5 kaf

**NORTH PLATTE RIVER OPERATING PLAN**  
Year Beginning Oct 2019

**HYDROLOGY OPERATIONS**

Seminoe Reservoir Operations		Initial Content					Operating Limits:					Max	1017.3 Kaf, 6357.00 Ft.		
							Min					31.7	Kaf, 6239.02 Ft.		
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
Total Inflow	kaf	37.5	34.8	29.0	27.1	29.7	62.6	157.8	389.9	582.8	222.6	62.1	37.1		
Total Inflow	cfs	610.	585.	472.	441.	516.	1018.	2652.	6341.	9794.	3620.	1010.	623.		
Turbine Release	kaf	32.7	31.5	32.6	32.6	30.5	196.5	189.1	195.5	184.8	182.0	94.1	70.4		
Jetflow Release	kaf	0.0	0.0	0.0	0.0	0.0	18.7	34.0	98.2	119.0	70.1	0.0	0.0		
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Release	kaf	32.7	31.5	32.6	32.6	30.5	215.2	223.1	293.7	303.8	252.1	94.1	70.4		
Total Release	cfs	532.	529.	530.	530.	530.	3500.	3749.	4777.	5106.	4100.	1530.	1183.		
Evaporation	kaf	4.8	2.6	1.5	1.4	1.4	2.7	4.5	4.4	8.7	10.7	8.9	6.3		
End-month content	kaf	823.4	826.6	822.2	815.8	814.2	659.7	590.2	678.6*	950.0*	910.4#	870.2#	831.3*		
End-month elevation	ft	6346.6	6346.8	6346.6	6346.2	6346.1	6336.2	6331.2	6337.5	6353.6	6351.5	6349.3	6347.1		
Kortes Reservoir Operations		Initial Content					Operating Limits:					Max	4.8 Kaf, 6142.73 Ft.		
							Min					1.7	Kaf, 6092.73 Ft.		
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
Total Inflow	kaf	32.7	31.5	32.6	32.6	30.5	215.2	223.1	293.7	303.8	252.1	94.1	70.4		
Total Inflow	cfs	532.	529.	530.	530.	530.	3500.	3749.	4777.	5106.	4100.	1530.	1183.		
Turbine Release	kaf	32.6	31.5	32.6	32.6	30.5	160.5	155.3	160.5	155.3	160.5	94.1	70.4		
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	54.7	67.8	133.2	148.5	91.6	0.0	0.0		
Total Release	kaf	32.6	31.5	32.6	32.6	30.5	215.2	223.1	293.7	303.8	252.1	94.1	70.4		
Total Release	cfs	530.	529.	530.	530.	530.	3500.	3749.	4777.	5106.	4100.	1530.	1183.		
Min reservoir rels	cfs	530.	530.	530.	530.	530.	3500.	3750.	4740.	5105.	530.	800.	800.		
Max reservoir rels	cfs	530.	530.	530.	530.	530.	3500.	3750.	4800.	5330.	4100.	1530.	1300.		
Pathfinder Reservoir Operations		Initial Content					Operating Limits:					Max	1095.0 Kaf, 5853.56 Ft.		
							Min					31.4	Kaf, 5746.00 Ft.		
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
Sweetwater Inflow	kaf	3.4	3.6	2.7	2.5	2.7	6.4	19.1	45.3	44.8	13.3	4.8	3.0		
Kortes-Path Gain	kaf	4.5	2.1	2.1	4.5	6.1	8.6	11.4	16.4	11.0	8.7	6.9	6.9		
Inflow from Kortes	kaf	32.6	31.5	32.6	32.6	30.5	215.2	223.1	293.7	303.8	252.1	94.1	70.4		
Total Inflow	kaf	40.5	37.2	37.4	39.6	39.3	230.2	253.6	355.4	359.6	274.1	105.8	80.3		
Total Inflow	cfs	659.	625.	608.	644.	683.	3744.	4262.	5780.	6043.	4458.	1721.	1349.		
Turbine Release	kaf	1.9	25.6	26.3	26.3	24.7	169.1	163.6	169.1	163.6	169.1	169.1	109.8		
Jetflow Release	kaf	4.6	4.5	4.6	4.6	4.3	6.5	39.2	137.8	145.0	149.7	61.3	4.5		
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Release	kaf	6.5	30.1	30.9	30.9	29.0	175.6	202.8	306.9	308.6	318.8	230.4	114.3		
Total Release	cfs	106.	506.	503.	503.	504.	2856.	3408.	4991.	5186.	5185.	3747.	1921.		
Evaporation	kaf	5.5	3.0	1.8	1.6	1.8	3.6	7.0	8.7	13.3	14.6	12.2	8.7		
End-month content	kaf	873.2	877.3	882.0	889.1	897.6	948.6	992.4	1032.2	1069.9	1010.6	873.8	831.1		
End-month elevation	ft	5843.3	5843.5	5843.7	5844.1	5844.5	5846.9	5849.0	5850.8	5852.5	5849.8	5843.3	5841.1		
Jetflow Release	cfs	75.	76.	75.	75.	75.	106.	659.	2241.	2437.	2435.	997.	76.		
Min Release	cfs	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0		
Alcova Reservoir Operations		Initial Content					Operating Limits:					Max	184.4 Kaf, 5500.00 Ft.		
							Min					145.3	Kaf, 5483.12 Ft.		
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
Total Inflow	kaf	6.5	30.1	30.9	30.9	29.0	175.6	202.8	306.9	308.6	318.8	230.4	114.3		
Total Inflow	cfs	106.	506.	503.	503.	504.	2856.	3408.	4991.	5186.	5185.	3747.	1921.		
Turbine Release	kaf	30.1	29.8	30.7	30.7	28.8	175.2	178.5	196.8	190.4	196.8	196.8	103.9		
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.6	103.5	102.1	16.7	0.0		
Casper Canal Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	13.3	18.3	15.5	9.3		
Total Release	kaf	30.1	29.8	30.7	30.7	28.8	175.2	178.5	305.9	307.2	317.2	229.0	113.2		
Total Release	cfs	490.	501.	499.	499.	501.	2849.	3000.	4975.	5163.	5159.	3724.	1902.		
Evaporation	kaf	0.7	0.3	0.2	0.2	0.2	0.4	0.8	1.0	1.4	1.6	1.4	1.1		
End-month content	kaf	155.9*	155.9*	155.9*	155.9*	155.9*	155.9*	179.4*	179.4*	179.4*	179.4*	179.4*	179.4*		
End-month elevation	ft	5487.9	5487.9	5487.9	5487.9	5487.9	5487.9	5498.0	5498.0	5498.0	5498.0	5498.0	5498.0		

NPRAOP V1.1K 21-Mar-2003 Run: 2-Oct-2019 13:22  
 Based on Reasonable Maximum April - July Inflow: Seminole 1353.1 kaf, Sweetwater 122.5 kaf, Glendo 328.5 kaf

NORTH PLATTE RIVER OPERATING PLAN  
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Gray Reef Reservoir Operations		Initial Content						1.7 Kaf			Operating Limits: Max		1.1 Kaf, 5327.42 Ft.		
											Min		0.0 Kaf, 5306.00 Ft.		
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
Total Inflow	kaf	30.1	29.8	30.7	30.7	28.8	175.2	178.5	296.4	293.9	298.9	213.5	103.9		
Total Inflow	cfs	490.	501.	499.	499.	501.	2849.	3000.	4820.	4939.	4861.	3472.	1746.		
Total Release	kaf	30.7	29.8	30.7	30.7	28.8	175.2	178.5	296.4	293.8	298.8#	213.4	103.8		
Total Release	cfs	499.	501.	499.	499.	501.	2849.	3000.	4820.	4937.	4860.	3471.	1744.		
Min reservoir rels	cfs	500.	500.	500.	500.	500.	2350.	2500.	4820.	4902.	5200.	3470.	1745.		
Max reservoir rels	cfs	500.	500.	500.	500.	500.	2850.	3000.	4830.	5300.	4860.	3500.	2005.		

Glendo Reservoir Operations		Initial Content						166.4 Kaf			Operating Limits: Max		763.0 Kaf, 4653.00 Ft.		
											Min		63.2 Kaf, 4573.94 Ft.		
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
Alcova-Glendo Gain	kaf	16.7	14.6	6.3	14.0	13.4	19.2	61.9	189.0	68.6	9.0	8.3	14.6		
Infl from Gray Reef	kaf	30.7	29.8	30.7	30.7	28.8	175.2	178.5	296.4	293.8	298.8	213.4	103.8		
Total Inflow	kaf	47.4	44.4	37.0	44.7	42.2	194.4	240.4	485.4	362.4	307.8	221.7	118.4		
Total Inflow	cfs	771.	746.	602.	727.	734.	3162.	4040.	7894.	6090.	5006.	3606.	1990.		
Turbine Release	kaf	2.0	0.0	0.0	0.0	0.0	0.0	214.2	223.1	227.9	236.7	228.6	214.2		
Low Flow Release	kaf	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Irrigation Release	kaf	0.0	0.0	0.0	0.0	0.0	275.3	60.2	68.7	68.3	96.0	109.5	81.0		
Total Release	kaf	3.5	1.5	1.5	1.5	1.4	276.8	275.9	293.3	297.7	334.2	339.6	296.7		
Total Release	cfs	57.	25.	24.	24.	24.	4502.	4637.	4770.	5003.	5435.	5523.	4986.		
Evaporation	kaf	1.4	0.9	0.8	0.9	1.0	1.7	2.4	3.9	6.6	7.7	6.1	3.3		
End-month content	kaf	208.9	250.9	285.6	327.9	367.7	283.6	245.7	433.9#	492.0*	457.5#	331.6#	150.0#		
End-month elevation	ft	4604.1	4609.9	4614.2	4619.1	4623.4	4614.0	4609.2	4629.9	4635.0	4632.0	4619.6	4594.6		

Guernsey Reservoir Operations		Initial Content						6.0 Kaf			Operating Limits: Max		45.6 Kaf, 4419.99 Ft.		
											Min		0.0 Kaf, 4370.00 Ft.		
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
Glendo-Guerns Gain	kaf	3.3	1.8	1.6	1.6	1.2	1.0	7.5	34.9	22.2	6.5	-0.2	4.2		
Inflow from Glendo	kaf	3.5	1.5	1.5	1.5	1.4	276.8	275.9	293.3	297.7	334.2	339.6	296.7		
Total Inflow	kaf	6.8	3.3	3.1	3.1	2.6	277.8	283.4	328.2	319.9	340.7	339.4	300.9		
Total Inflow	cfs	111.	55.	50.	50.	45.	4518.	4763.	5338.	5376.	5541.	5520.	5057.		
Turbine Release	kaf	4.5	0.0	0.0	0.0	0.0	0.0	54.1	54.0	51.8	53.6	53.6	55.8		
Seepage	kaf	0.3	0.2	0.3	0.3	0.2	0.3	0.4	1.2	3.0	3.1	2.5	0.3		
Spillway Release	kaf	2.6	0.0	0.0	0.0	0.0	276.3	222.3	266.8	264.1	282.9	282.4	270.3		
Total Release	kaf	7.4	0.2	0.3	0.3	0.2	276.6	276.8	322.0	318.9	339.6	338.5	326.4		
Total Release	cfs	120.	3.	5.	5.	3.	4498.	4652.	5237.	5359.	5523.	5505.	5485.		
Evaporation	kaf	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.7	1.0	1.1	0.9	0.5		
End-month content	kaf	5.2*	8.1#	10.7#	13.3#	15.5#	16.4*	22.5*	28.0*	28.0*	28.0*	28.0*	2.0*		
End-month elevation	ft	4394.8	4398.4	4400.9	4403.1	4404.7	4405.3	4409.0	4411.9	4411.9	4411.9	4411.9	4388.0		
Physical EOM Cont	kaf	2072.5	2124.7	2162.3	2207.9	2256.8	2070.1	2036.1	2358.0	2725.2	2591.8	2288.9	1999.7		

NORTH PLATTE RIVER OPERATING PLAN  
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OWNERSHIP OPERATIONS

North Platte Pathfinder		Initial Ownership 669.7 Kaf, Accrued this water year: 0.0 Kaf											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Net Accrual	kaf	41.3	38.1	32.2	32.5	36.8	74.4	183.2	383.1	76.5	0.0	0.0	0.0
Evaporation	kaf	4.1	2.4	1.6	1.6	1.7	3.2	5.1	5.6	13.1	14.0	12.1	8.3
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	231.0	266.8	0.0	0.0	0.0	91.7	256.6
End-month Ownership	kaf	711.0	749.1	781.3	813.8	850.6	694.0	610.4	993.5	1070.0	1056.0	952.2	687.3
North Platte Guernsey		Initial Ownership 0.0 Kaf, Accrued this water year: 0.0 Kaf											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Net Accrual	kaf	0.0	0.0	7.6	15.3	14.3	8.4	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.0	0.0	0.3	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	45.6	0.0	0.0	0.0	0.0	0.0	0.0
End-month Ownership	kaf	0.0	0.0	7.6	22.9	37.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Inland Lakes		Initial Ownership 0.0 Kaf, Accrued this water year: 0.0 Kaf											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Net Accrual	kaf	20.0	16.1	0.0	0.0	0.0	0.0	9.9	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.0	0.3	0.1	0.1	0.1	0.1	0.3	0.3	0.0	0.0	0.0	0.0
Trnsfr fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.0	35.2	0.0	0.0	0.0	0.0
End-month Ownership	kaf	20.0	36.1	36.0	35.9	35.8	35.7	35.6	0.1	0.1	0.1	0.1	0.1
Kendrick		Initial Ownership 1121.6 Kaf, Accrued this water year: 0.0 Kaf											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Net Accrual	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	129.7	0.0	0.0	0.0
Evaporation	kaf	7.0	3.8	2.4	2.2	2.3	4.3	8.1	10.0	14.1	15.8	13.5	10.1
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	0.0	0.0	15.5	9.3
End-month Ownership	kaf	1114.6	1110.8	1108.4	1106.2	1103.9	1099.6	1091.5	1072.0	1201.7	1185.9	1156.9	1137.5
Glendo Unit		Initial Ownership 165.2 Kaf, Accrued this water year: 0.0 Kaf											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Accrual	kaf	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	1.1	0.5	0.3	0.3	0.3	0.6	1.2	1.6	2.2	2.2	1.8	1.4
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	4.0
End-month Ownership	kaf	164.1	163.6	163.3	163.0	162.7	168.6	167.4	165.8	163.6	161.4	154.6	149.2
Re-regulation		Initial Ownership 45.7 Kaf, Accrued this water year: 0.0 Kaf											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Accrual	kaf	0.0	0.0	0.0	0.0	0.0	5.1	59.2	0.0	163.8	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.3	0.1	0.1	0.1	0.1	0.2	0.3	0.9	1.3	3.4	1.9	0.0
Release	kaf	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	97.8	159.9	0.0
End-month total	kaf	38.0	37.9	37.8	37.7	37.6	42.5	101.4	100.5	263.0	161.8	0.0	0.0

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City of Cheyenne		Initial Ownership 7.6 Kaf,											
-----		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
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Inflow	kaf	0.7	2.5	0.7	0.5	0.6	0.8	0.3	0.6	2.7	1.1	0.7	0.7
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.1	0.1
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	1.6	0.5	0.0	0.0
Ownership	kaf	8.3	10.8	11.5	12.0	12.6	13.4	13.6	10.1	11.0	11.4	12.0	12.6
Pacifcorp		Initial Ownership 2.0 Kaf,											
-----		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ownership	kaf	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Other		Initial Ownership 14.6 Kaf,											
-----		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Inflow	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.9	0.0
Ownership	kaf	14.5	14.4	14.4	14.4	14.4	14.3	14.2	14.0	13.8	13.2	11.1	11.0

IRRIGATION DELIVERY

-----		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Kendrick (Casper Canal)		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Requested	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	13.3	18.3	15.5	9.3
Delivered	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	13.3	18.3	15.5	9.3
Kendrick (River)		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Requested	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delivered	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guernsey Deliveries		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
North Platte Req	kaf	0.0	0.0	0.0	0.0	0.0	276.6	266.8	286.8	316.9	333.6	333.5	322.4
Glendo Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	6.0	5.0	4.0
Inland Lakes Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.0	35.2	0.0	0.0	0.0	0.0
Total Requirement	kaf	0.0	0.0	0.0	0.0	0.0	276.6	276.8	322.0	318.9	339.6	338.5	326.4
Seepage	kaf	0.3	0.2	0.3	0.3	0.2	0.3	0.4	1.2	3.0	3.1	2.5	0.3
Actual Release	kaf	7.4	0.2	0.3	0.3	0.2	276.6	276.8	322.0	318.9	339.6	338.5	326.4
Waste	kaf	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2019

POWER GENERATION

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
-----													
Seminoe Power Plant													
-----													
Turbine Release	kaf	32.7	31.5	32.6	32.6	30.5	196.5	189.1	195.5	184.8	182.0	94.1	70.4
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	18.7	34.0	98.2	119.0	70.1	0.0	0.0
Maximum generation	gwh	33.263	32.200	33.268	33.257	31.092	33.475	31.050	32.258	32.159	32.578	32.844	32.032
Actual generation	gwh	5.719	5.513	5.705	5.688	5.310	33.475	31.050	32.258	32.159	32.578	16.706	12.390
Percent max generation		17.	17.	17.	17.	17.	100.	100.	100.	100.	100.	51.	39.
Average kwh/af		175.	175.	175.	174.	174.	170.	164.	165.	174.	179.	178.	176.
-----													
Kortes Power Plant													
-----													
Turbine Release	kaf	32.6	31.5	32.6	32.6	30.5	160.5	155.3	160.5	155.3	160.5	94.1	70.4
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	54.7	67.8	133.2	148.5	91.6	0.0	0.0
Maximum generation	gwh	28.346	26.712	27.606	27.606	25.817	27.606	26.712	27.606	26.712	27.606	27.606	26.712
Actual generation	gwh	5.607	5.418	5.607	5.607	5.246	27.606	26.712	27.606	26.712	27.606	16.185	12.109
Percent max generation		20.	20.	20.	20.	20.	100.	100.	100.	100.	100.	59.	45.
Average kwh/af		172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.
-----													
Fremont Canyon													
-----													
Turbine Release	kaf	1.9	25.6	26.3	26.3	24.7	169.1	163.6	169.1	163.6	169.1	169.1	109.8
Bypass	kaf	4.6	4.5	4.6	4.6	4.3	6.5	39.2	137.8	145.0	149.7	61.3	4.5
Maximum generation	gwh	47.221	45.697	47.236	47.240	44.200	47.267	45.763	47.331	45.808	47.348	47.281	45.681
Actual generation	gwh	0.531	7.151	7.347	7.347	6.901	47.267	45.763	47.331	45.808	47.348	47.281	30.659
Percent max generation		1.	16.	16.	16.	16.	100.	100.	100.	100.	100.	100.	67.
Average kwh/af		279.	279.	279.	279.	279.	280.	280.	280.	280.	280.	280.	279.
-----													
Alcova Power Plant													
-----													
Turbine Release	kaf	30.1	29.8	30.7	30.7	28.8	175.2	178.5	196.8	190.4	196.8	196.8	103.9
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.6	103.5	102.1	16.7	0.0
Maximum generation	gwh	27.172	26.588	27.472	27.472	25.704	27.472	26.275	27.552	26.656	27.552	27.552	26.656
Actual generation	gwh	4.156	4.053	4.175	4.175	3.917	23.827	24.633	27.552	26.656	27.552	27.552	14.546
Percent max generation		15.	15.	15.	15.	15.	87.	94.	100.	100.	100.	100.	55.
Average kwh/af		138.	136.	136.	136.	136.	136.	138.	140.	140.	140.	140.	140.
-----													
Glendo Power Plant													
-----													
Turbine Release	kaf	2.0	0.0	0.0	0.0	0.0	0.0	214.2	223.1	227.9	236.7	228.6	214.2
Bypass	kaf	1.5	1.5	1.5	1.5	1.4	276.8	61.7	70.2	69.8	97.5	111.0	82.5
Maximum generation	gwh	1.761	0.000	0.000	0.000	0.000	0.000	20.065	23.008	25.673	26.880	24.543	19.363
Actual generation	gwh	0.162	0.000	0.000	0.000	0.000	0.000	20.065	23.008	25.673	26.880	24.543	19.363
Percent max generation		9.	0.	0.	0.	0.	0.	100.	100.	100.	100.	100.	100.
Average kwh/af		81.	0.	0.	0.	0.	0.	94.	103.	113.	114.	107.	90.
-----													
Guernsey Power Plant													
-----													
Turbine Release	kaf	4.5	0.0	0.0	0.0	0.0	0.0	54.1	54.0	51.8	53.6	53.6	55.8
Bypass	kaf	2.9	0.2	0.3	0.3	0.2	276.6	222.7	268.0	267.1	286.0	284.9	270.6
Maximum generation	gwh	0.212	0.000	0.000	0.000	0.000	0.000	3.541	3.734	3.667	3.795	3.795	3.404
Actual generation	gwh	0.212	0.000	0.000	0.000	0.000	0.000	3.541	3.734	3.667	3.795	3.795	3.404
Percent max generation		100.	0.	0.	0.	0.	0.	100.	100.	100.	100.	100.	100.
Average kwh/af		47.	0.	0.	0.	0.	0.	65.	69.	71.	71.	71.	61.



# Glossary

**Annual Operating Plan (AOP)** - An annual publication which is prepared, reviewed, and presented to the public, with a summary of the actual operations and outlook for the coming water year.

**Acre-Foot (AF)** - A measure of volume of water equal to an area of 1 acre covered with water 1 foot deep (43,560 cubic feet).

**Basin** - The watershed from which overland runoff flows into the North Platte River. When used alone in this report it refers to the North Platte River Drainage Basin upstream of Guernsey Dam.

**Bypass** - That amount of water released from a reservoir other than through the powerplant for those reservoirs which have a powerplant connected to them.

**Cubic foot per second (cfs)** - The rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute. The volume of water represented by a flow of 1 cubic foot per second for 24 hours is equivalent to 86,400 cubic feet, approximately 1.983 AF, or 646,272 gallons.

**Evaporation pool** - A volume of water set aside in the accounting process from which reservoir evaporation is subtracted as it occurs (used in Glendo storage accounting).

**Flood pool** - A physical space in the reservoir which is to be occupied only by water from flood events. In Glendo Reservoir, the volume between reservoir elevations 4635.0 feet and 4653.0 feet is reserved exclusively for flood control.

**Gains** - Water which enters a river in a defined reach from a source other than an upstream release. When flow released into a reach is greater than the river flow exiting the lower end of the reach, the net gain is negative (loss of water in the reach).

**Giga Watt hour (GWh)** - A unit of power equal to one billion watt hours.

**Head** - The difference in elevation between the reservoir water surface and the power generating turbines at a powerplant which is connected to a reservoir.

**Hydromet** - Computer software designed for the acquisition, processing, storage, and retrieval of hydrological and meteorological data which is gathered via satellite from remote sites.

**Inflow** - As used in this report is any water which enters a reservoir irrespective of whether it originated in the reach or was released from an upstream storage reservoir.

**Inland Lakes** - A series of four off-stream storage reservoirs on the Interstate Canal system in Nebraska which are used to store and re-release irrigation water (Lake Alice, Lake Minatare, Little Lake Alice, and Lake Winters Creek).

**Megawatt (MW)** – A unit of power equal to one million watts.

**Natural flow** - River flow which has originated from a source other than reservoir storage.

**NRCS** – The Natural Resources Conservation Service which is a government agency under the Department of Agriculture.

**Power pool** - That space in a reservoir which must be full in order to efficiently generate electrical power through an associated turbine generator.

**Precipitation** - A deposit on the earth of hail, mist, rain, sleet, or snow.

**Runoff** - That part of precipitation on the Basin which appears as flow in the North Platte River.

**Silt Run** - The name given to the practice of flushing silt from Guernsey Reservoir into the North Platte River downstream where the silt laden water is diverted by irrigators. The silt tends to settle in the slower moving water of canals and laterals helping to seal the wetted perimeter and reduce seepage losses.

**SNOTEL** - Snowpack telemetry network. A network of NRCS automated sites which continually monitor snowpack and weather conditions and transmit data to a data retrieval center in Portland, Oregon.

**System** - As used in the report the System includes all storage, delivery, and power generating facilities on the mainstem of the North Platte River in Wyoming.

**SWE** – Snow Water Equivalent is the amount of water in the snowpack expressed in inches.

**Water Year (WY)** - October 1 through September 30.

# Reservoir Data Definitions Sheets

## A. General:

Dam design and reservoir operation utilize reservoir capacity and water surface elevation data. To ensure uniformity in the establishment, use, and publication of this data the following standard definitions of water surface elevations and reservoir capacities shall be used.

## B. Water Surface Elevation Definitions:

**Maximum Water Surface** - The highest acceptable water surface elevation with all factors affecting the safety of the structure considered. Normally it is the highest water surface elevation resulting from a computed routing of the inflow design flood through the reservoir on the basis of established operating criteria. It is the top of surcharge capacity.

**Top of Exclusive Flood Control Capacity** - The reservoir water surface elevation at the top of the reservoir capacity allocated to exclusive use for the regulating of flood inflows to reduce damage downstream.

**Maximum Controllable Water Surface Elevation** - The highest reservoir water surface elevation at which gravity flows from the reservoir can be completely shut off.

**Top of Joint Use Capacity** - The reservoir water surface elevation at the top of the reservoir capacity allocated to joint use, i.e., flood control and conservation purposes.

**Top of Active Conservation Capacity** - The reservoir water surface elevation at the top of the capacity allocated to the storage of water for conservation purposes only.

**Top of Inactive Capacity** - The reservoir water surface elevation below which the reservoir will not be evacuated under normal conditions.

**Top of Dead Capacity** - The lowest elevation in the reservoir from which water can be drawn by gravity.

**Streambed at the Dam Axis** - The elevation of the lowest point in the streambed at the axis of the dam prior to construction. This elevation normally defines the zero for the area-capacity tables.

### C. Capacity Definitions:

**Surcharge Capacity** - The reservoir capacity provided for use in passing the inflow design flood through the reservoir. It is the reservoir capacity between the maximum water surface elevation and the highest of the following elevations:

- a) Top of exclusive flood control capacity
- b) Top of joint use capacity
- c) Top of active conservation capacity

**Total Capacity** - The reservoir capacity below the highest of the elevations representing the top of exclusive flood control capacity, the top of joint use capacity, or the top of active conservation capacity. In the case of a natural lake which has been enlarged, the total capacity includes the dead capacity of the lake. Total capacity is used to express the total quantity of water which can be impounded and is exclusive of surcharge capacity.

**Live Capacity** - The part of the total capacity from which water can be withdrawn by gravity. It is equal to the total capacity less the dead capacity.

**Active Capacity** - The reservoir capacity normally usable for storage and regulation of reservoir inflows to meet established reservoir operating requirements. Active capacity extends from the highest of the top of exclusive flood control capacity, the top of joint use capacity, or the top of active conservation capacity to the top of inactive capacity. It is the total capacity less the sum of the inactive and dead capacities.

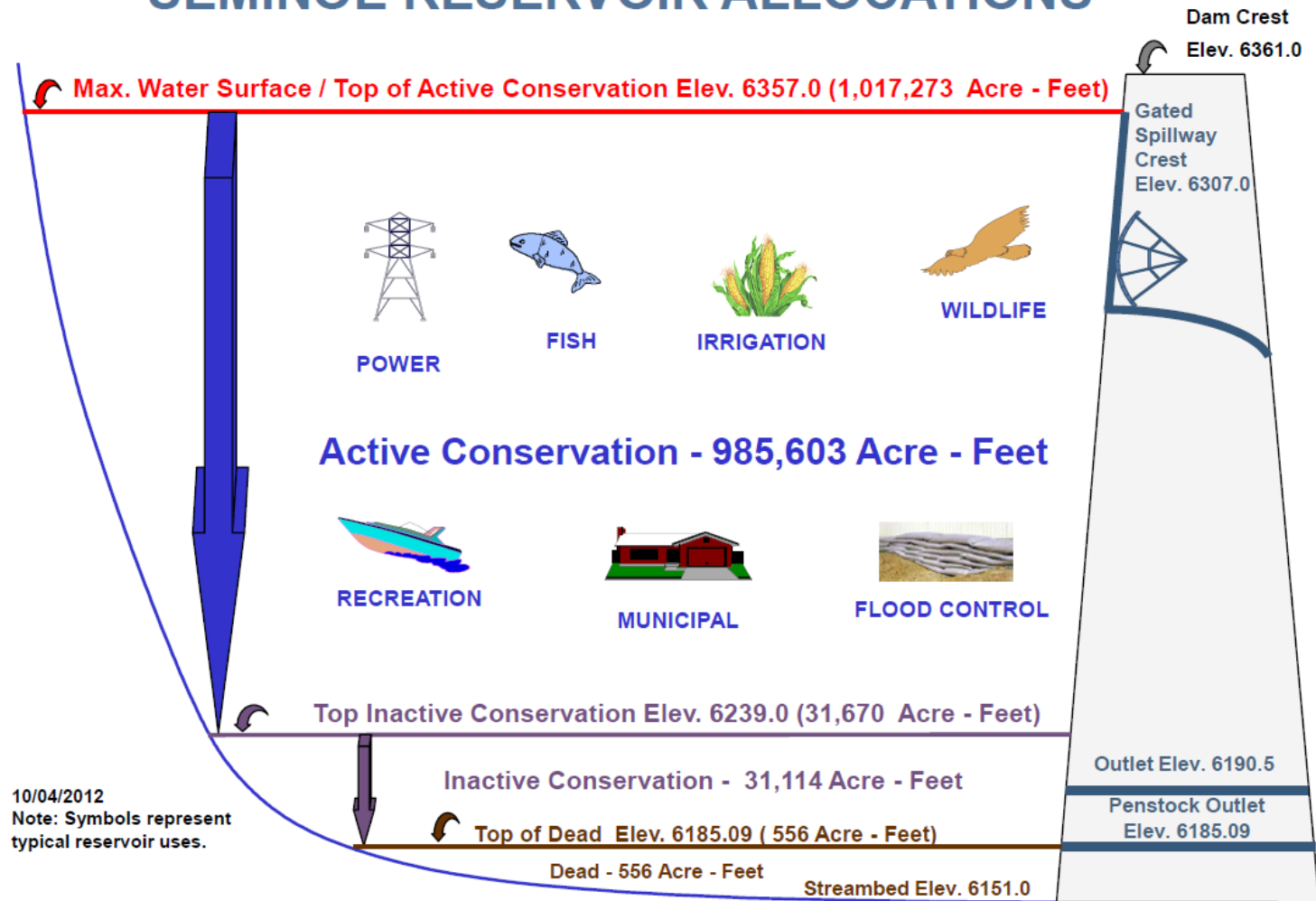
**Exclusive Flood Control Capacity** - The reservoir capacity assigned to the sole purpose of regulating flood inflows to reduce flood damage downstream.

**Joint Use Capacity** - The reservoir capacity assigned to flood control purposes during certain periods of the year and to conservation purposes during other periods of the year.

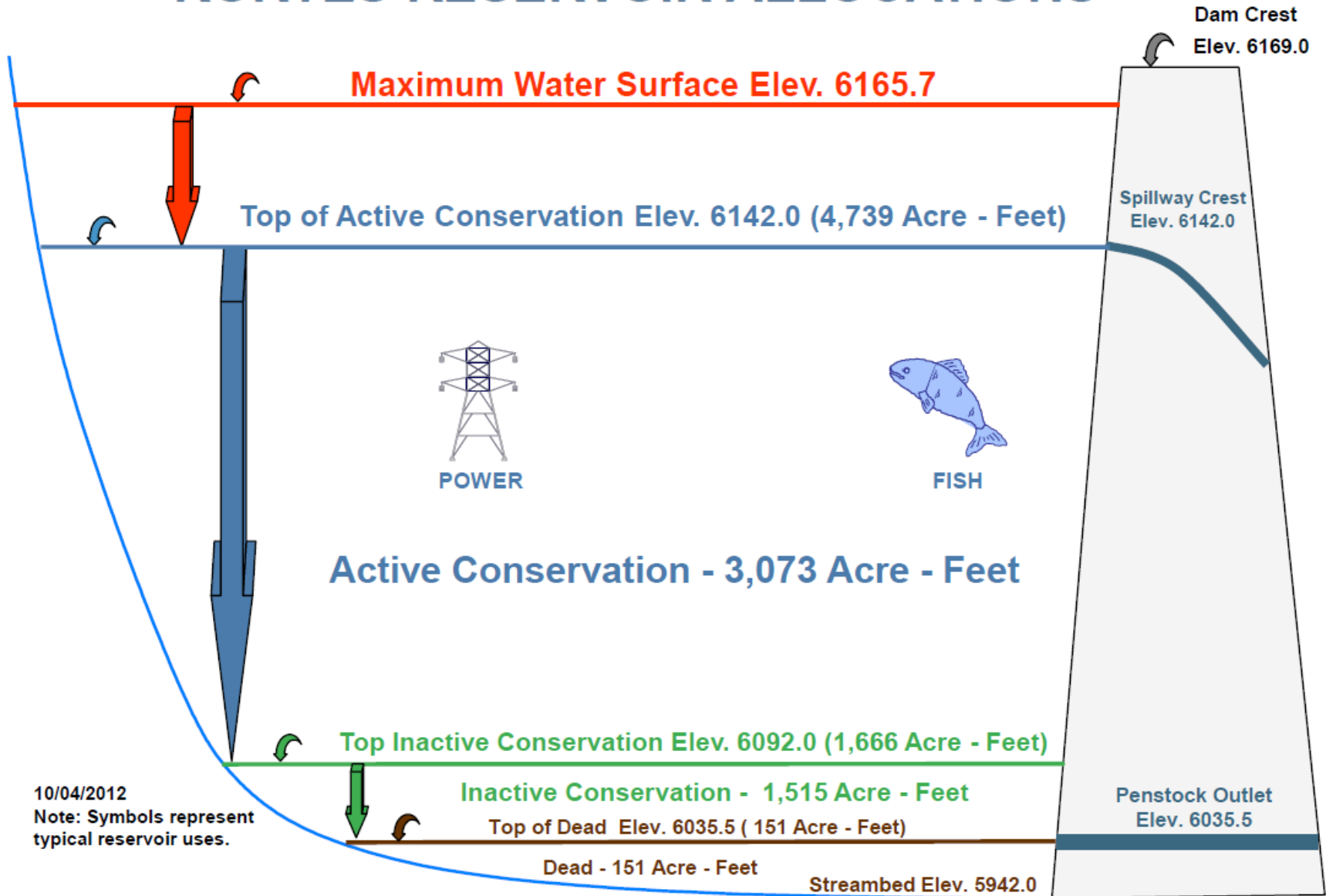
**Active Conservation Capacity** - The reservoir capacity assigned to regulate reservoir inflow for irrigation, power, municipal, and industrial, fish and wildlife, navigation, recreation, water quality, and other purposes. It does not include exclusive flood control or joint use capacity. The active conservation capacity extends from the top of the active conservation capacity to the top of the inactive capacity.

# Reservoir Allocation Sheets

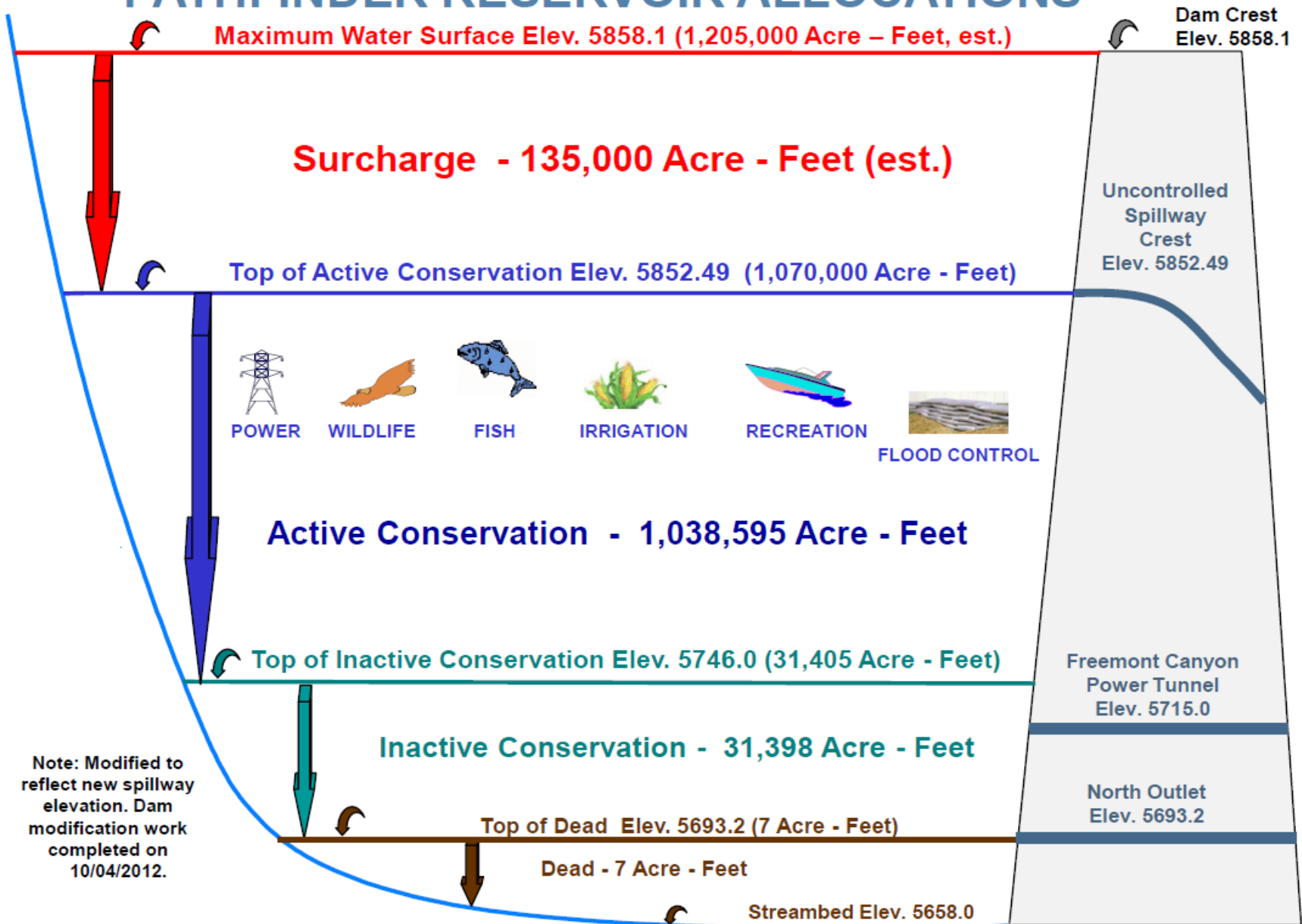
## SEMINOE RESERVOIR ALLOCATIONS



# KORTES RESERVOIR ALLOCATIONS

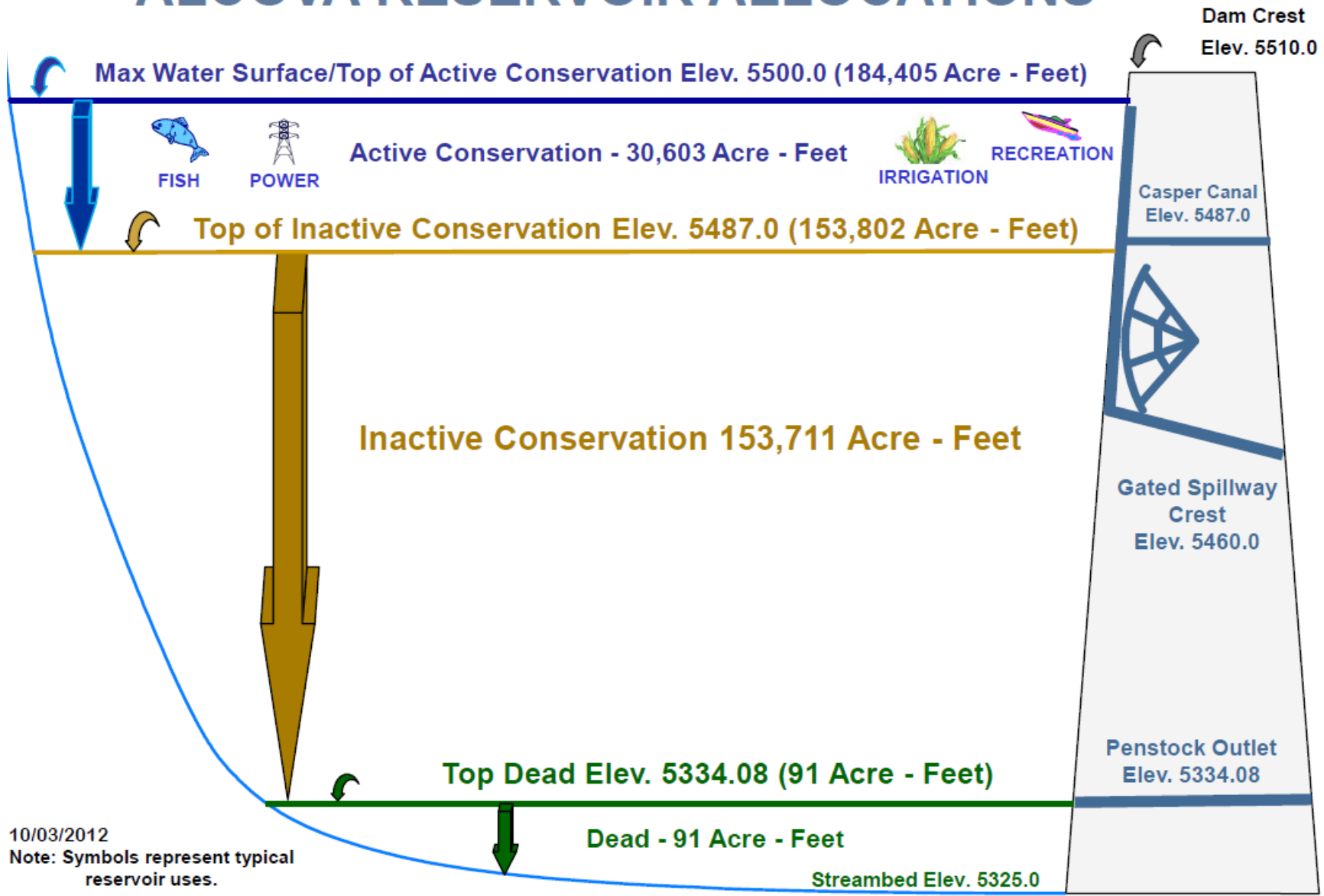


# PATHFINDER RESERVOIR ALLOCATIONS



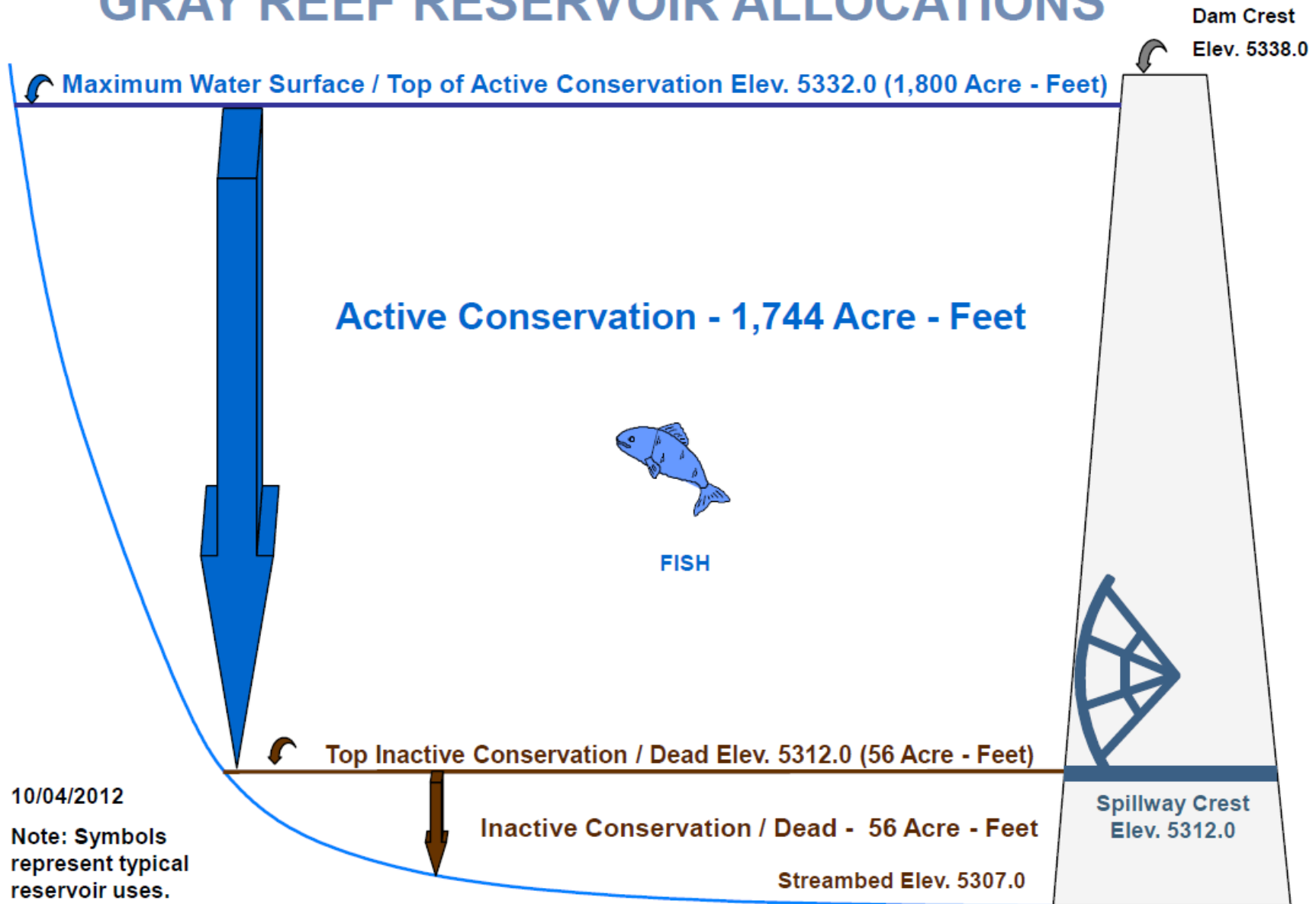
Note: Modified to reflect new spillway elevation. Dam modification work completed on 10/04/2012.

# ALCOVA RESERVOIR ALLOCATIONS





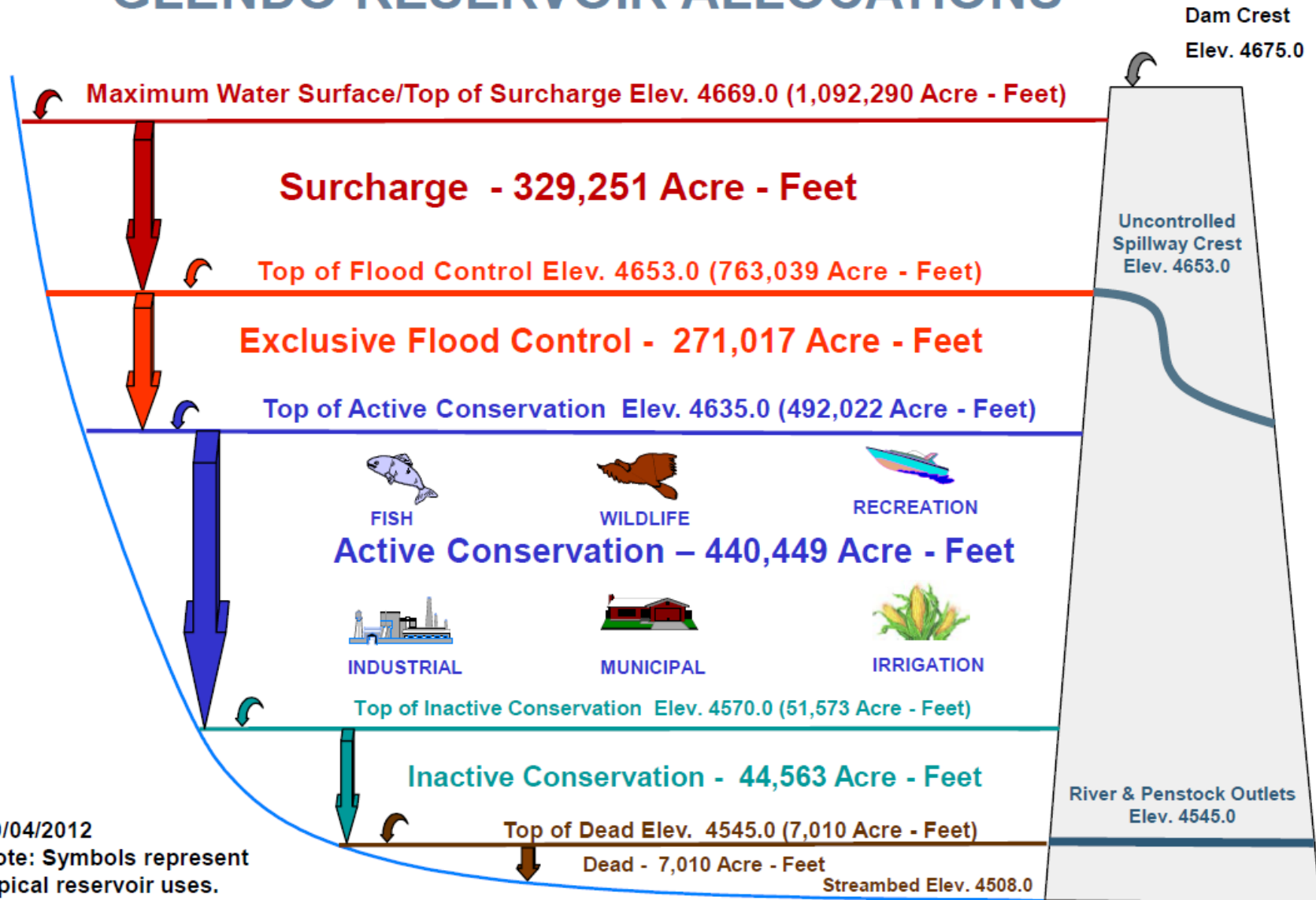
# GRAY REEF RESERVOIR ALLOCATIONS



10/04/2012

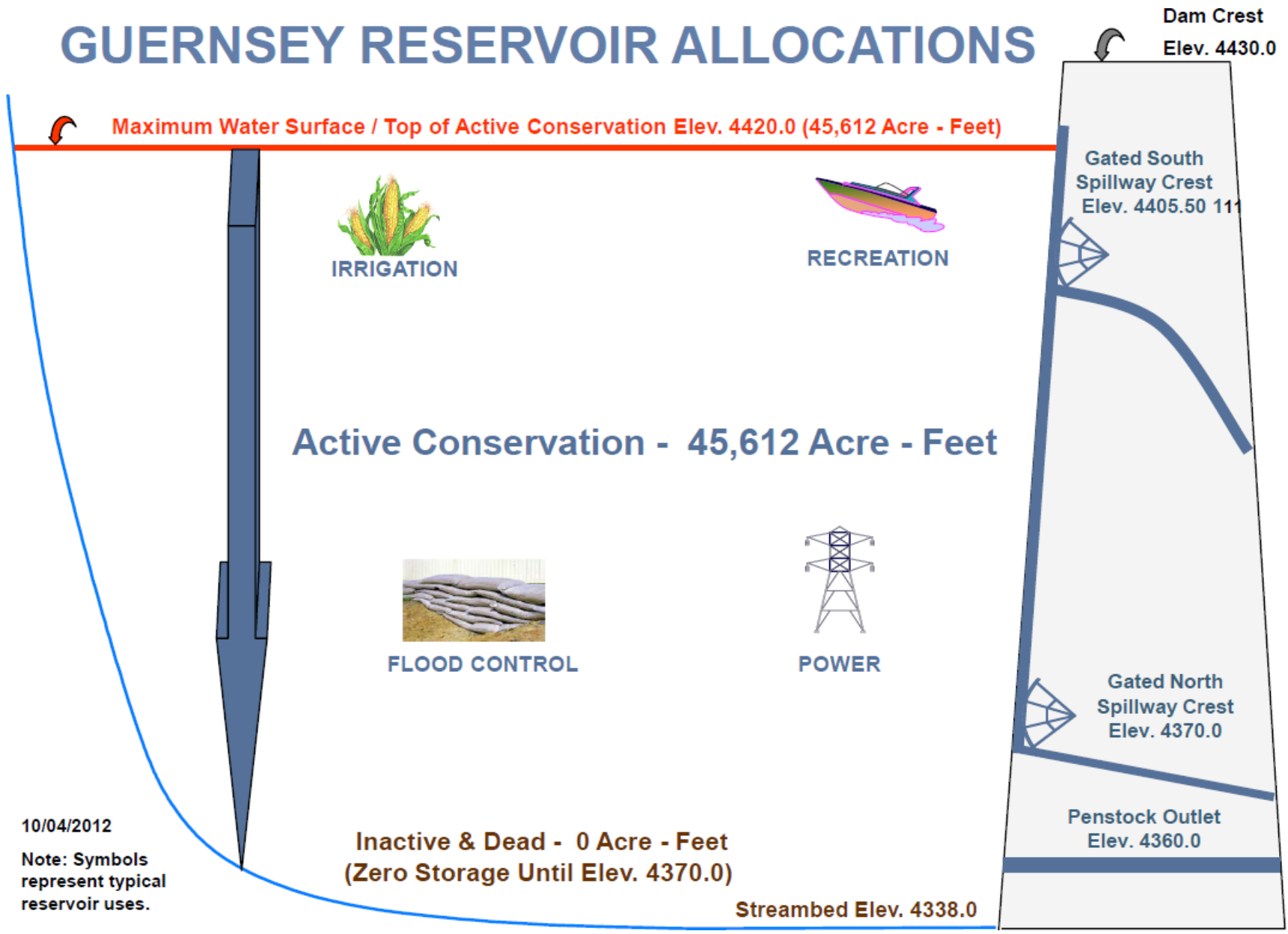
Note: Symbols represent typical reservoir uses.

# GLENDO RESERVOIR ALLOCATIONS

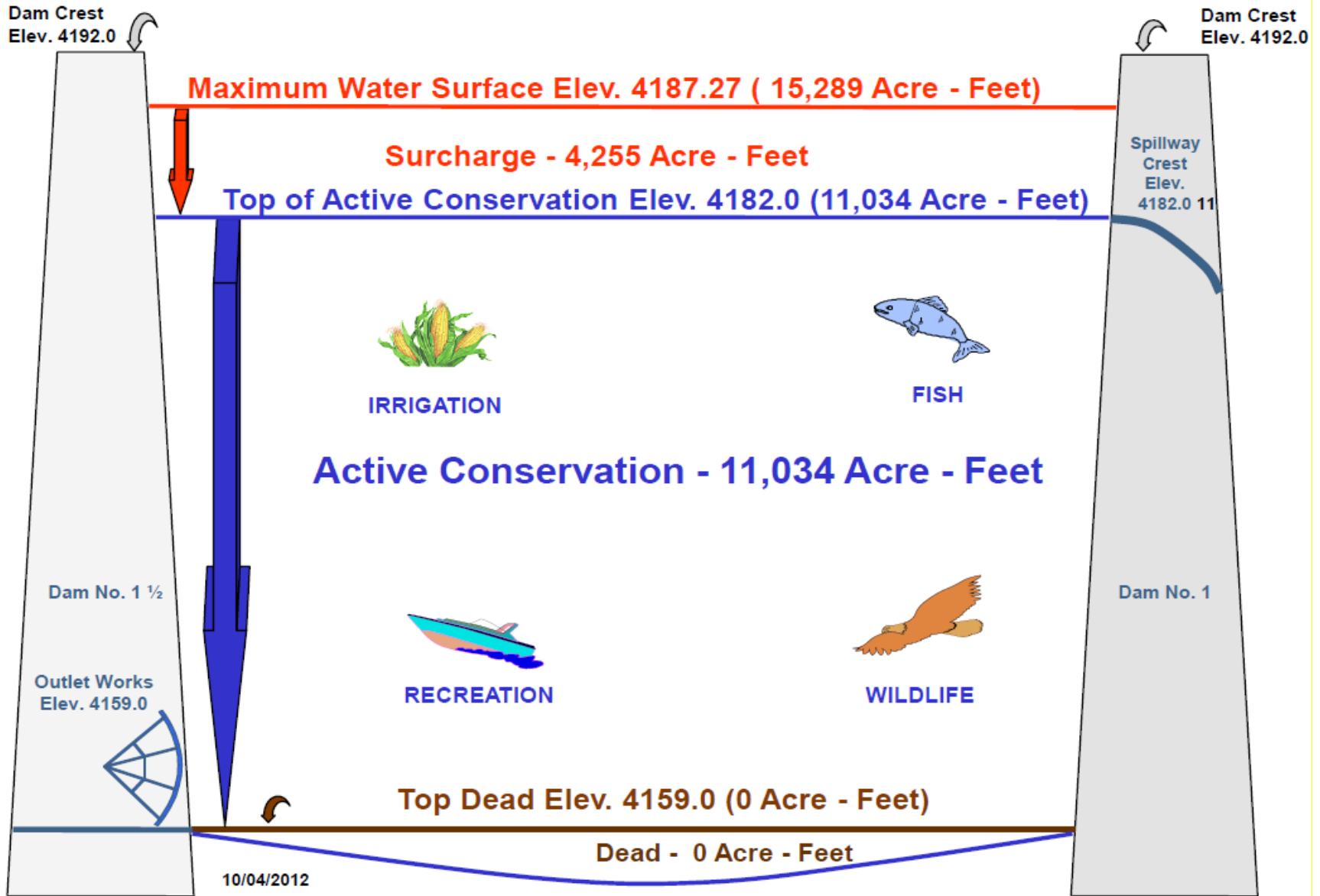


10/04/2012  
 Note: Symbols represent typical reservoir uses.

# GUERNSEY RESERVOIR ALLOCATIONS

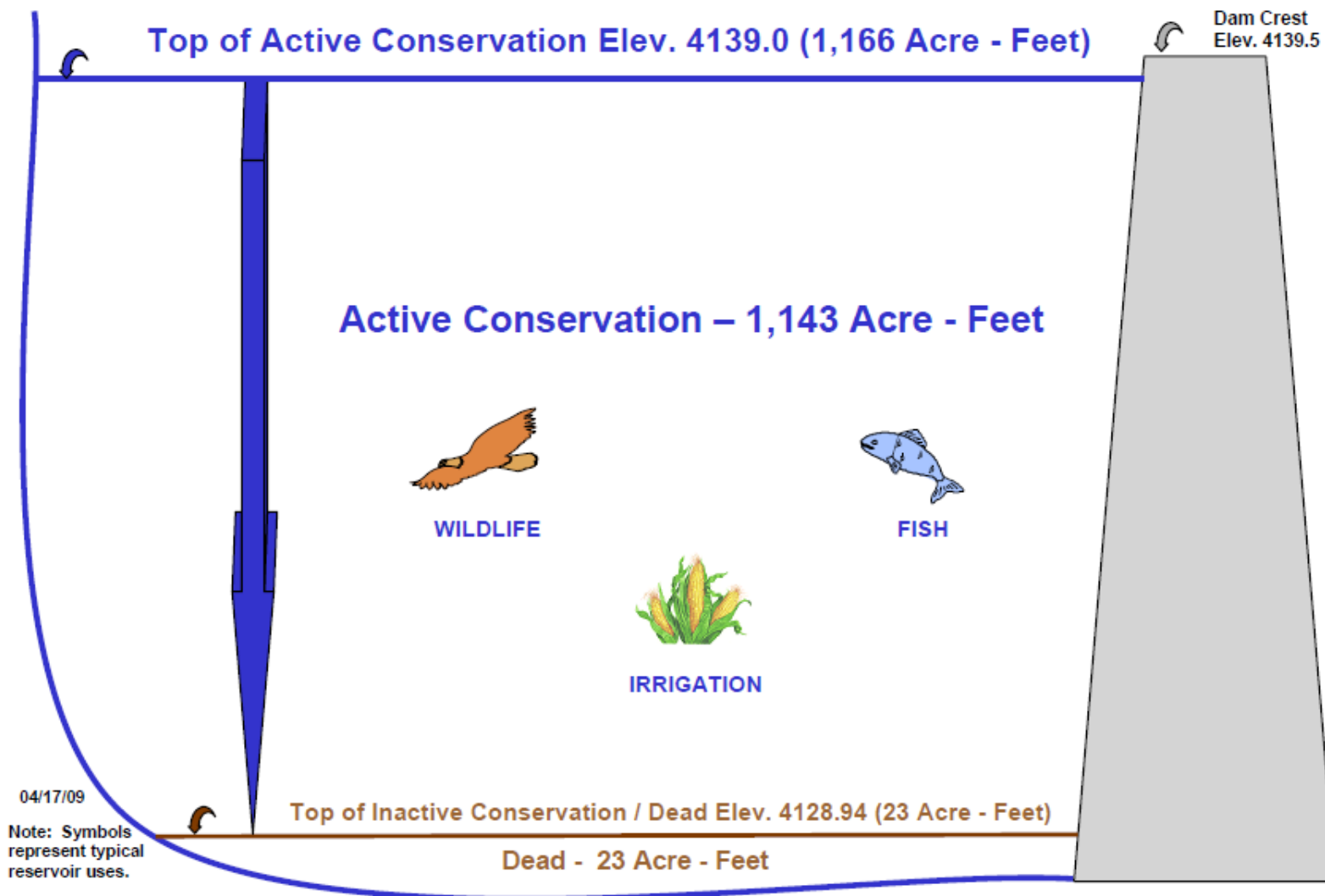


# LAKE ALICE RESERVOIR ALLOCATIONS

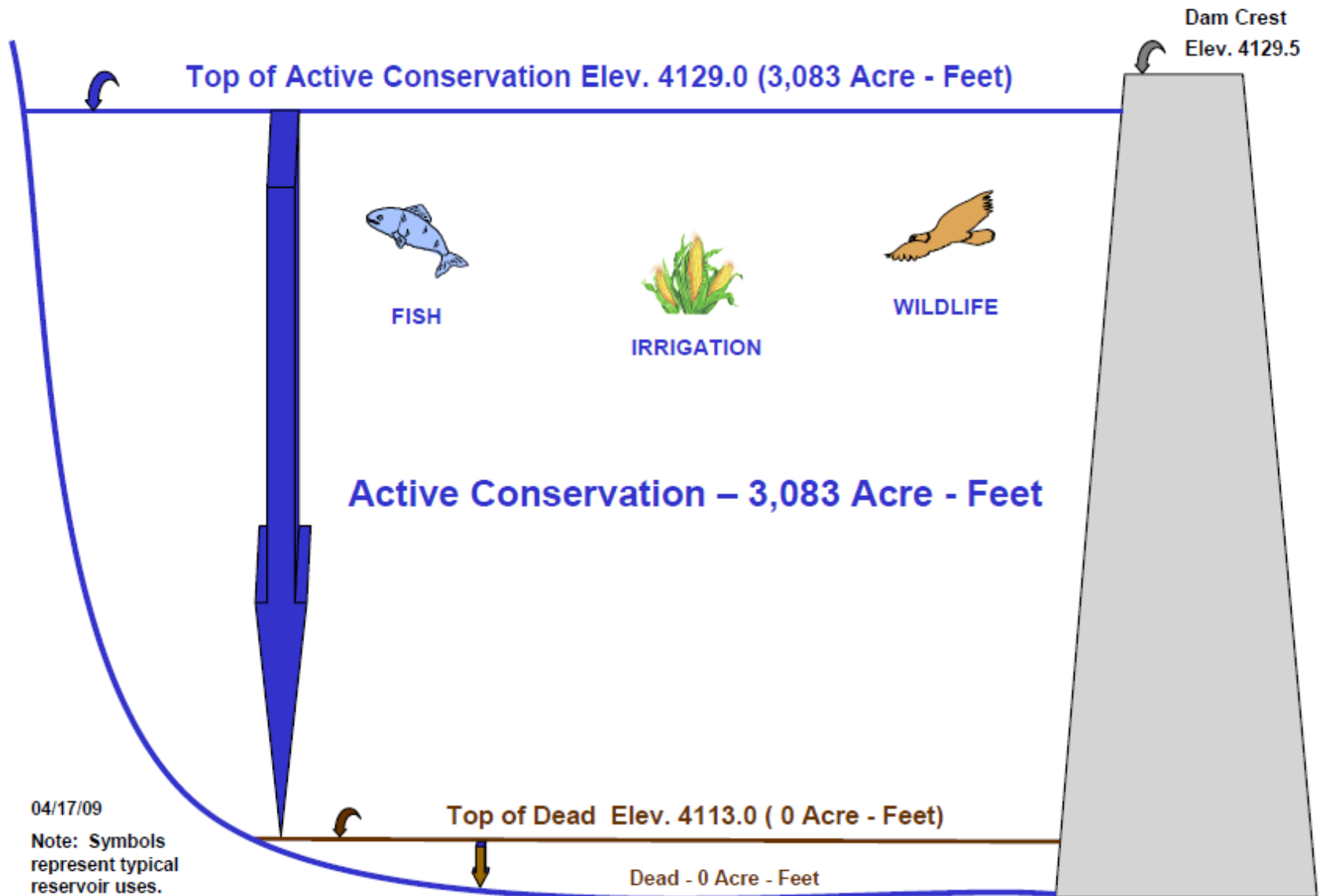


Note: Symbols represent typical reservoir uses.

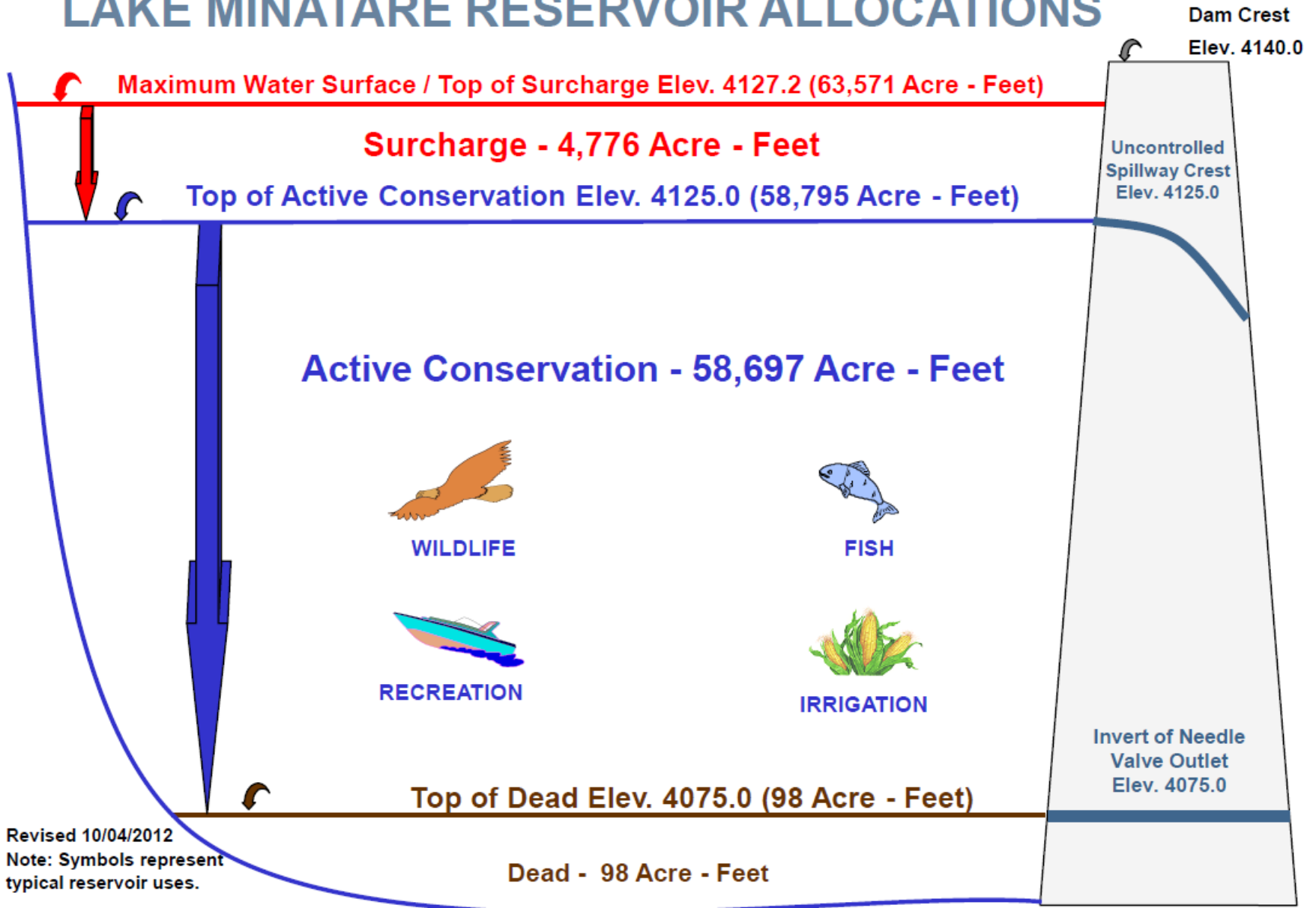
# LITTLE LAKE ALICE RESERVOIR ALLOCATIONS



# WINTERS CREEK RESERVOIR ALLOCATIONS



# LAKE MINATARE RESERVOIR ALLOCATIONS



Revised 10/04/2012  
Note: Symbols represent typical reservoir uses.

# Miscellaneous Figures

Figure 20 Pathfinder Watershed Runoff 1906-2019

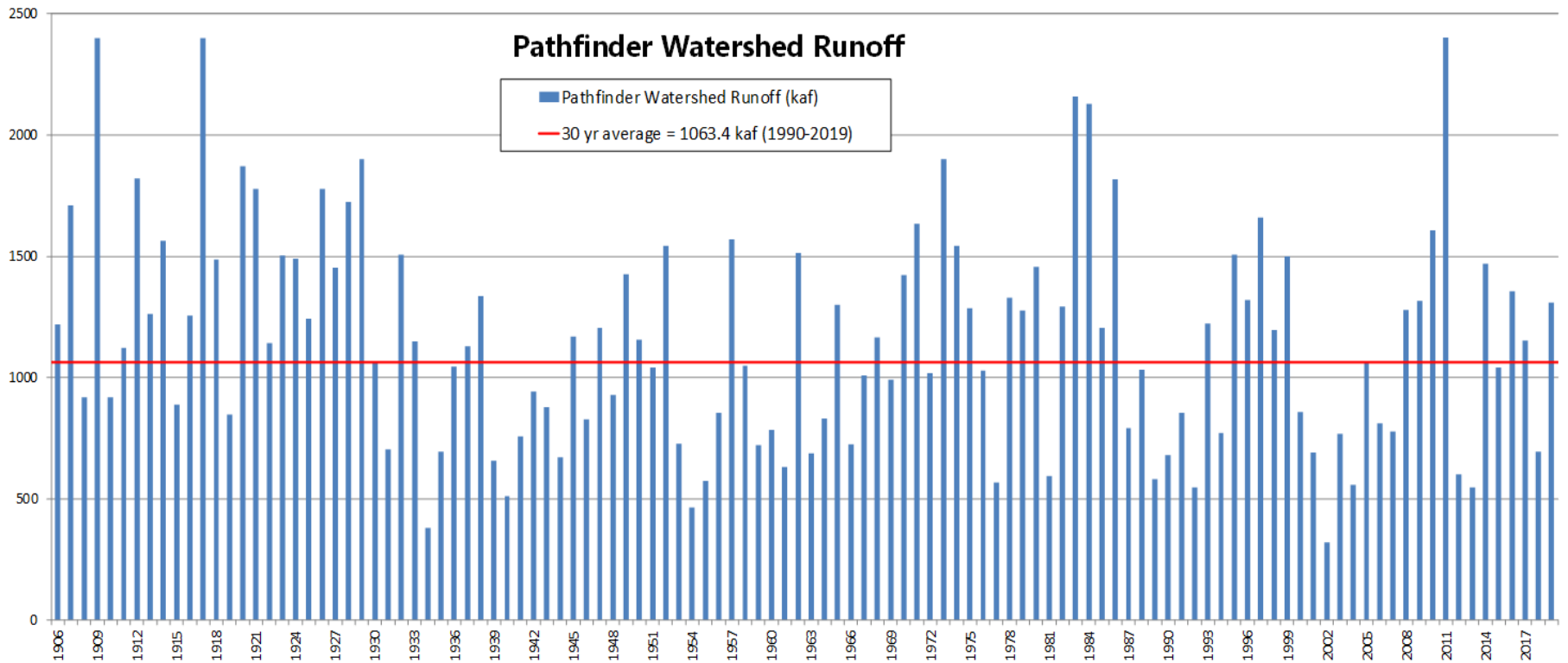




Figure 21 North Platte River Basin Map

