

# RECLAMATION

*Managing Water in the West*

## Annual Operating Plans

North Platte River Area

**Water Year 2017**

*Summary of Actual Operations*

*and*

**Water Year 2018**

*Annual Operating Plans*



U.S. Department of Interior  
Bureau of Reclamation  
Great Plains Region  
Wyoming Area Office

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## **PREFACE**

This report documents the operation of the Bureau of Reclamation facilities in the North Platte River Drainage Basin (Basin) above and including Guernsey Dam and the four Inland Lakes near Scottsbluff, Nebraska. References to average in this document will refer to the average of the historical record for the years 1987-2016, except for water year (WY) 2018 information which uses the years 1988-2017.

## **INTRODUCTION**

The system of dams, reservoirs, and powerplants on the North Platte River (System) is monitored, operated and managed from the Wyoming Area Office (WYAO). 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 telemetry (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 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, Figure 21.

Approximately 70 to 80 percent of the annual North Platte River streamflow above Seminole Dam occurs from snowmelt runoff during the April to July period. Primary demand is irrigation, from May through September. The System furnishes irrigation water to over 440,000 acres of land in Wyoming and Nebraska.

The System includes the Kendrick Project in Wyoming; with major features of the project being Seminole 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 (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 Seminole 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 (WAPA) operates, maintains, and markets the power generated from 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.

**Table 1** North Platte River Reservoir Data

Reservoir (Date Completed)	Dead Storage <sup>1</sup> Acre-feet (AF)	Active Storage <sup>2</sup> (AF)	Total Storage (AF)	Minimum Storage (AF)	Minimum Elevation (feet)
Seminole (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>
Total	7,871	3,078,997	3,086,868	253,980	

<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 System storage, power generation, and water delivery facilities are operated for irrigation, hydroelectric power production, municipal, and industrial water supply, flood control, recreation, and fish and wildlife preservation. The facilities provide year round flows in the river below each North Platte dam except for Guernsey Dam. 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 WYAO. WYAO collects and analyzes information and makes decisions 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.

Optimum use of the available water resources in the System can be achieved through careful budgeting of the anticipated water supply. The end product of this budgeting process is an Annual Operating Plan (AOP).

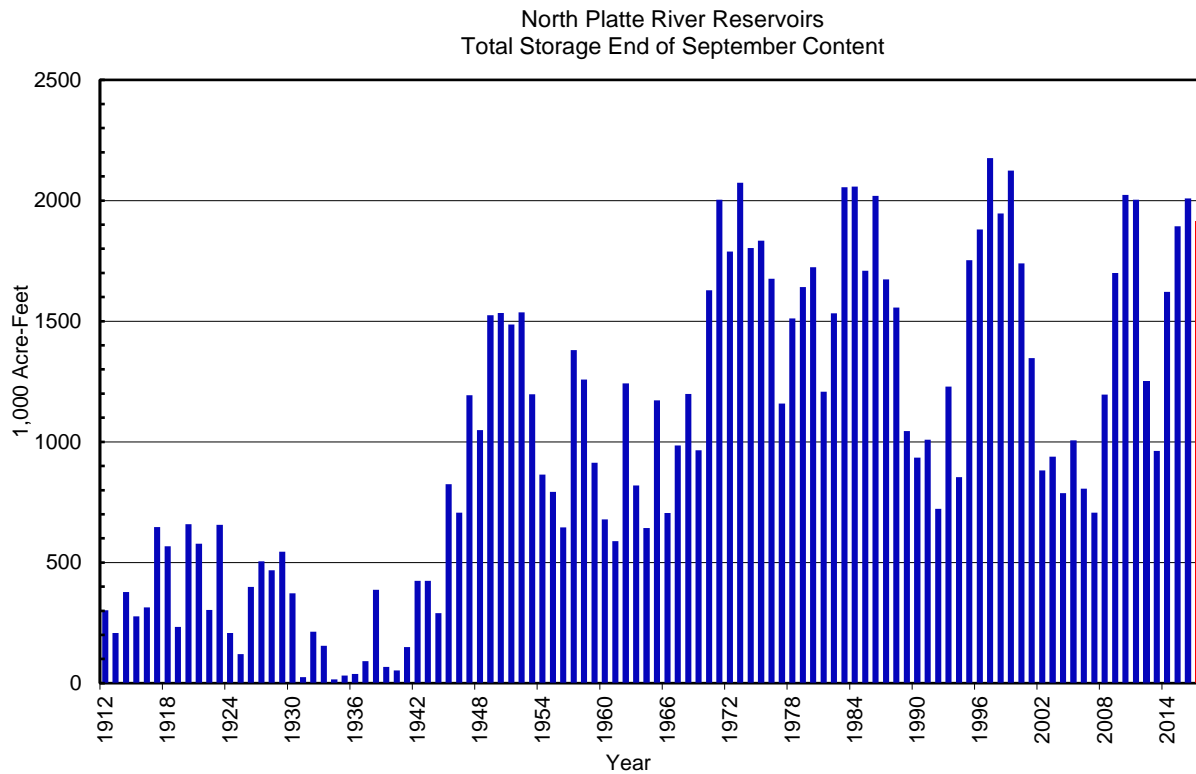
The System is operated on a water year (WY) basis (October 1 through September 30). The AOP consists of three operation studies using reasonable minimum, reasonable maximum, and most probable inflow conditions determined from statistical analysis of historical inflow conditions. The AOP, as developed and reflected in the three operation studies, provides the flexibility to adjust operations as conditions change during the water year. Computer programs are used 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 2017. Table 2 depicts a summary of reservoir storage content for water year (WY) 2017 (end of month). Table 9 depicts the actual reservoir operations for WY 2017.

**Table 2** Summary of Reservoir Storage Content for WY 2017 (End of Month)

Seminoe Reservoir		Pathfinder Reservoir		Alcova Reservoir <sup>2</sup>	
Month	Storage	Month	Storage	Month	Storage
October	782,972	October	894,873	October	158,144
November	772,968	November	899,126	November	156,944
December	763,232	December	903,190	December	157,147
January	757,281	January	912,380	January	157,260
February	754,719	February	940,327	February	157,283
March	772,315	March	967,345	March	158,348
April	736,526	April	1,008,385	April	180,669
May	847,007	May	1,010,137	May	180,523
June	884,547	June	1,039,827	June	180,840
July	873,691	July	922,665	July	180,425
August	835,819	August	839,314	August	180,791
September	813,288	September	792,751	September	180,327
Glendo Reservoir		Guernsey Reservoir		Total System <sup>1</sup>	
Month	Storage	Month	Storage	Month	Storage
October	190,508	October	0	October	2,032,839
November	229,742	November	0	November	2,064,970
December	265,611	December	0	December	2,095,234
January	307,428	January	0	January	2,140,536
February	350,356	February	0	February	2,208,900
March	432,491	March	0	March	2,336,713
April	466,321	April	28,240	April	2,426,504
May	487,121	May	29,977	May	2,560,859
June	461,186	June	27,945	June	2,600,783
July	316,942	July	26,855	July	2,326,680
August	166,828	August	28,280	August	2,057,141
September	111,946	September	9,078	September	1,913,299

<sup>1</sup> Total North Platte system includes storage in Seminoe, Kortes, Pathfinder, Alcova, Gray Reef, Glendo and Guernsey Reservoirs

<sup>2</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)

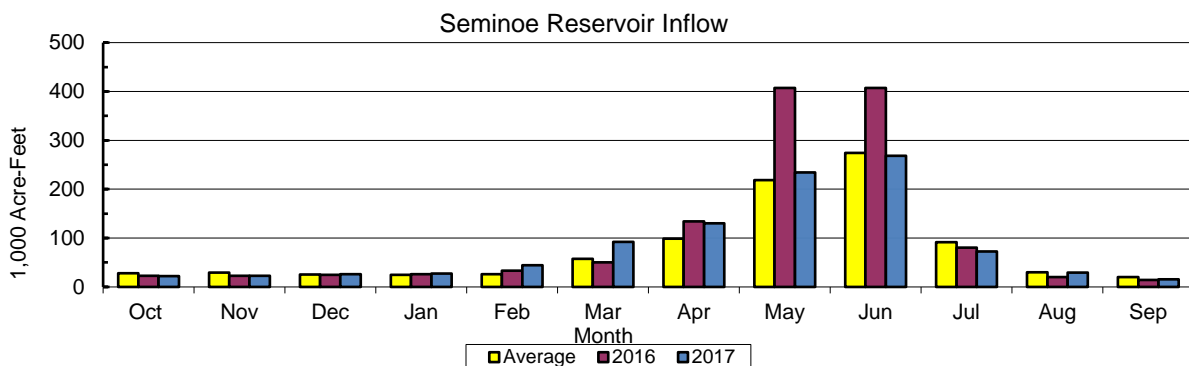


**Figure 1** North Platte River Reservoirs Total Storage End of September Content (1912-2017)

## SYSTEM OPERATIONS WY 2017

### Seminole Reservoir Inflow

Seminole Reservoir inflows totaled 985,200 acre-feet (AF), 106 percent of the 30 year average during WY 2017. The inflows ranged from 169 percent of average in February 2017 to 76 percent in November 2016. The April to July inflow totaled 705,102 AF, 103 percent of the 30 year average of 683,800 AF. The inflow peaked on June 12, 2017, at 7,203 cubic feet per second (cfs). Figure 2 depicts a comparison of average, WY 2016 and WY 2017 monthly inflows.



**Figure 2** Seminole Reservoir Inflow

## **Seminoe Reservoir Storage and Releases**

Seminoe Dam and Reservoir is the main storage facility for the Kendrick Project. The dam was completed in 1939, providing a storage capacity of 1,017,273 AF. The powerplant contains three electrical generating units with a 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.

Seminoe Reservoir started WY 2017 with a storage of 797,761 AF, 135 percent of average and 78 percent of capacity. The maximum storage was reached on June 15, 2017, at 897,716 AF. Seminoe Reservoir ended WY 2017 with a storage of 813,288 AF, 137 percent of average and 80 percent of capacity. Figure 3 shows a comparison of, WY 2016 and WY 2017 monthly storage.

Releases from Seminoe Dam averaged 541 cfs in October 2016. The release remained at 540 cfs through January 2017, and increased to a maximum of 4,529 cfs on June 10, 2017. The release from the dam was 1,000 cfs throughout August and decreased to 530 cfs by September 6, 2017. The flows remained at 530 cfs through the rest of September. Table 3 depicts a summary of Seminoe Reservoir information for WY 2017.



**Table 3** Seminole Reservoir Hydrologic Data for WY 2017

Reservoir Allocations	Elevation (FT)	Storage (AF)	Storage Allocation (AF)
Top of Inactive and Dead	6,239.00	31,670	31,670
Top of Active Conservation	6,357.00	1,017,273	985,603
Crest of Dam (without Camber)	6,361.00		

Storage-Elevation Data	Elevation (FT)	Storage (AF)	Date
Beginning of water year	6,345.13	797,761	Sep 30, 2016 <sup>2</sup>
End of water year	6,346.05	813,288	30-Sep-17
Annual Low	6,340.46	722,707	7-May-17
Historic Low <sup>1</sup>	6,253.30	56,390	20-Apr-61
Annual High	6,350.82	897,716	15-Jun-17
Historic High <sup>1</sup>	6,359.29	1,073,050	20-Jun-49

<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

Inflow-Outflow Data	Inflow <sup>3</sup>	Date	Outflow	Date
Annual Total (AF)	985,113	Oct 16–Sep 17	919,980	Oct 16–Sep 17
Daily Peak (CFS)	7,203	Jun 12, 2017	45,294	Jun 10, 2017
Daily Minimum (CFS)	5	Oct. 31, 2017	4594	Jan. 9, 2017

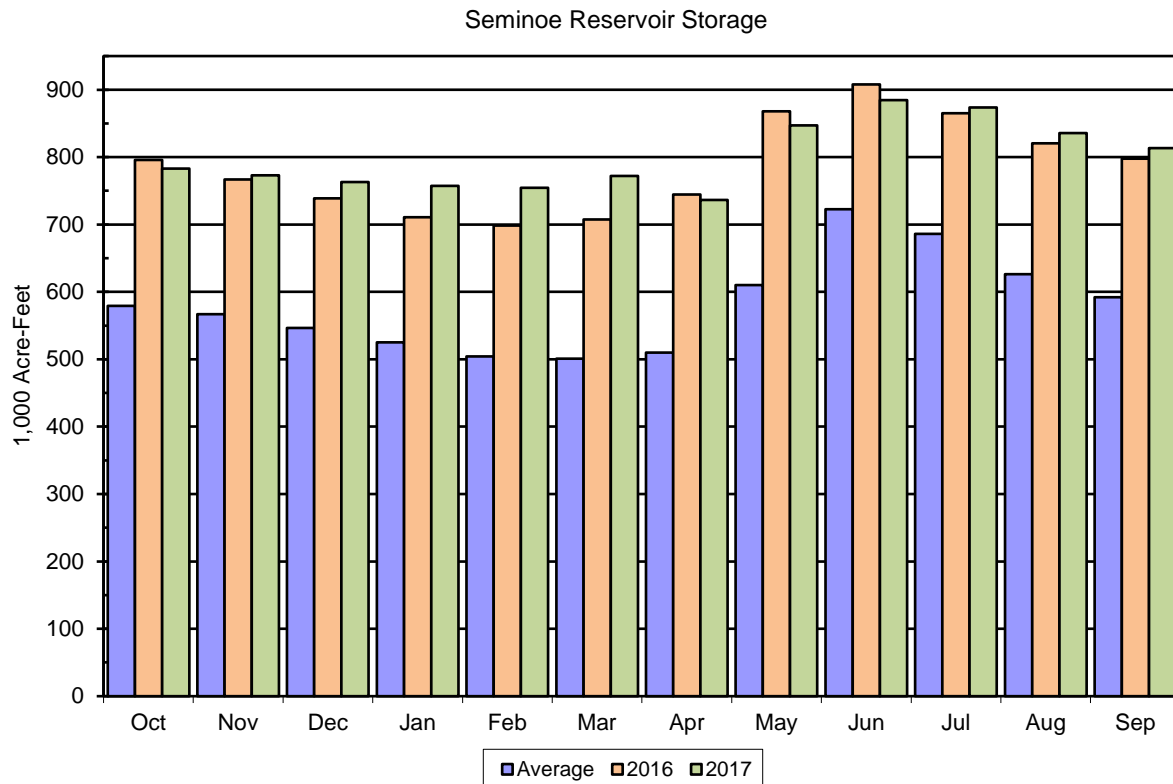
<sup>3</sup> Inflows are a computed number.

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

Month	Inflow		Outflow		Content <sup>6</sup>	
	KAF	% of Avg. <sup>5</sup>	KAF	% of Avg. <sup>5</sup>	KAF	% of Avg. <sup>5</sup>
October	22.3	79	33.2	86	783	135
November	22.6	76	32	79	773	136
December	25.9	101	33.1	73	763.2	140
January	27.4	109	32.8	72	757.3	144
February	44.2	169	46.1	100	754.7	150
March	92.5	162	74.3	126	772.3	154
April	130.1	131	159	182	736.5	144
May	234.3	107	118.4	104	847	139
June	268.3	98	220.9	142	884.5	122
July	72.5	79	72.8	61	873.7	127
August	29.3	97	61.6	74	835.8	133
September	15.9	79	35.9	72	813.3	137
Annual	985.2	106	920	104		

<sup>5</sup> The 30 year average is the period (1987-2016)

<sup>6</sup> End of month



**Figure 3** Seminole Reservoir Storage

### Kortes Reservoir Storage and Releases

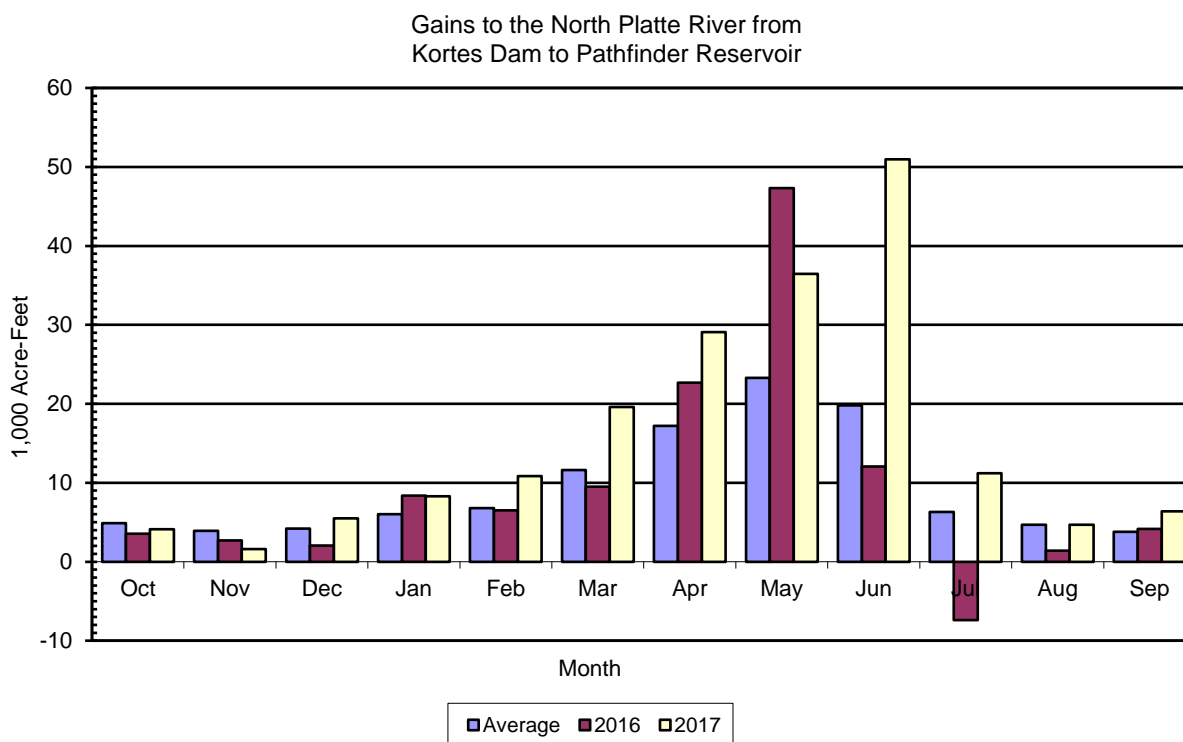
Completed in 1951, Kortes Dam, Reservoir, and Powerplant of the Kortes Unit PS-MBP are located about 2 miles below Seminole Dam. It was the first unit initiated by Reclamation under the Missouri River Basin Project. Kortes Reservoir provides a total storage capacity of 4,739 AF at elevation 6,142.0 feet which is 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 2,700 cfs. Water released from Seminole 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 Seminole 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 Nintieith 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. Releases averaged 540 cfs in October 2016 they increased to 1,200 cfs in late February 2017 and remained there until early April. An increase was made in early April to 3,200 cfs and then decreased later in May to 1,500 cfs. The Kortes Dam release peaked at 4,527 cfs on June 10, 2017. Releases were decreased to 2,000 cfs by the

end of June and decreased again to 1,000 cfs on July 13, 2017 which continued into August. By the end of WY 2017 the flows through Kortes Powerplant were 530 cfs.

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

Kortes Dam to Pathfinder Dam river gains were above average for ten months of WY 2017. The Kortes Dam to Pathfinder Dam river gains ranged from 258 percent of average in June 2017 to 41 percent in November WY 2016. The April to July river gains were 127,696 AF, 192 percent of the 30 year average of 69,100 AF. Figure 4 is a comparison of WY 2016 and WY 2017 average monthly river gains.



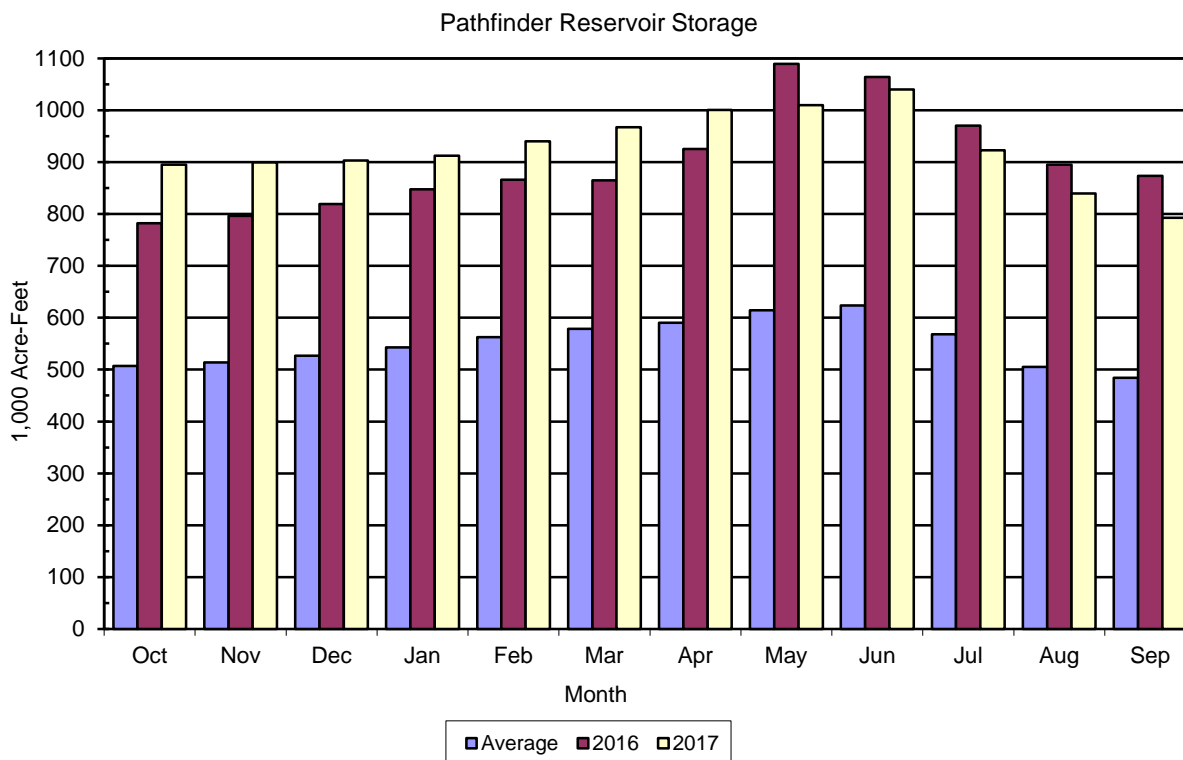
**Figure 4** Gains to the North Platte River from Kortes Dam to Pathfinder Reservoir

### Pathfinder Reservoir Storage and Releases

Pathfinder Dam and Reservoir, a major storage facility of the 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 6,000 cfs. The rated capacity of the left abutment outlet works through the two 60- inch jet flow gates is 3,000 cfs at elevation 5,852.49 feet. The flow capacity range of the 30- inch jet flow gate is from 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 2017, storage in Pathfinder Reservoir was 873,420 AF, 180 percent of average and 82 percent of capacity. Pathfinder storage was above the 30 year average for WY 2017. Pathfinder Reservoir storage content peaked on June 21, 2017, at 1,047,241 AF, 98 percent of capacity. Pathfinder Reservoir ended WY 2017 with 792,751 AF, 164 percent of average and 74 percent of capacity. A continual release 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 2,038 cfs on June 13, 2017. Table 4 depicts a summary of Pathfinder Reservoir information for WY 2017.



**Figure 5** Pathfinder Reservoir Storage

**Table 4** Pathfinder Reservoir Hydrologic Data for Water Year 2017

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	5,843.27	873,420	Oct 1, 2016 <sup>3</sup>
End of water year	5,839.07	792,751	30-Sep-17
Annual Low	5,839.00	791,456	23-Sep-17
Historic Low <sup>2, 3</sup>	5,690.00	0	9-Sep-58
Annual High	5,851.48	1,047,241	21-Jun-17
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)	1,108,409	Oct 2016–Sep 2017	1,115,687	Oct 2016–Sep 2017
Daily Peak (CFS)	6,202	17-Jun-17	4,419	9-Jun-17
Daily Minimum (CFS)	50	20-Nov-16	21	31-Oct-17
Peak Flow below Pathfinder Dam(CFS)			2,038	13-Jun-17
Total Flow below Pathfinder Dam (AF)			178,126	Oct 2016–Sep 2017

<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 2017 that resulted in a peak flow of 2,038 cfs.

Month	Gain from Kortess		Inflow <sup>6</sup>		Outflow		Content <sup>8</sup>	
	KAF	% of Avg. <sup>5</sup>	KAF	% of Avg. <sup>5</sup>	KAF	% of Avg. <sup>5</sup>	KAF	% of Avg. <sup>5</sup>
October	4.1	84	37.3	86	9.2	55	894.9	177
November	1.6	41	33.6	76	28.6	79	899.1	175
December	5.5	131	38.6	78	31.3	89	903.2	171
January	8.3	138	41.1	79	31.2	89	912.4	168
February	11	159	56.8	107	28	87	940.3	167
March	20	169	94	134	66.2	127	967.4	167
April	29	169	187.8	180	137.1	153	1008.4	171
May	37	157	154.9	113	145.5	135	1010.1	164
June	51	258	271.9	155	230	145	1039.8	167
July	11	178	84	66	187.1	108	922.7	162
August	4.7	100	66.3	76	139.7	97	839.3	166
September	6.4	168	42.2	79	81.8	117	792.8	164
Annual	189	168	1109	111	1115.8	118		

<sup>5</sup> 30 year average is the period (1987-2016)

<sup>6</sup> The inflow includes the gain from Kortess 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 184,405 AF at elevation 5,500 feet, of which the top 30,603 AF is active capacity available for irrigation of the Kendrick Project. The Alcova Powerplant consists of two electrical generating units with a total installed capacity of 36 MW at a full release capability of 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 operated during the irrigation season, May through September, at a level of 5498 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.

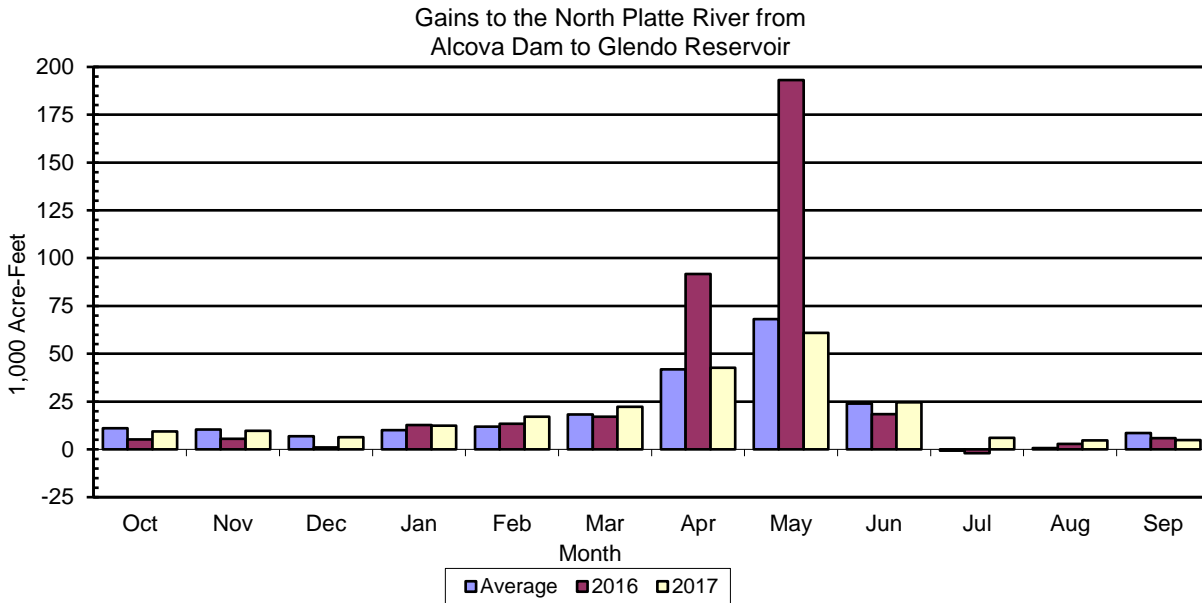
The annual drawdown of Alcova Reservoir began on October 1, 2016, and continued through October 31, 2016, when the reservoir reached its normal winter operating range of 5,488 plus or minus one foot. The refill of Alcova Reservoir was initiated on March 31, 2017. The water surface elevation was raised to 5,498 feet on April 27, 2017, 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, PS-MBP. 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 reregulate 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.

Gray Reef Reservoir releases were maintained at 500 cfs from September 15, 2016 through March 5, 2017. At the request of the Wyoming Game and Fish Department, a series of flushing flows were initiated on March 5 to March 15, 2017, during which the flows were varied each day from 500 cfs to 4,000 cfs, for the purpose of flushing silt from spawning gravels used by trout. At the completion of the flushing flows, releases from Gray Reef Reservoir were brought down to 1,000 cfs until April 4, 2017. Releases for the remainder of WY 2017 were adjusted to meet irrigation demands below Guernsey Reservoir. The largest daily release occurred on June 9, 2017, at 4,004 cfs.

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

River gains from Alcova Dam to Glendo Reservoir were above average six months of WY 2017 and below average for the remainder of WY 2017. The Alcova Dam to Glendo Reservoir river gains ranged from a high of 792 percent in August 2017 to a low of 57 percent in September 2016. The 30-year average gain in July is negative, making a percentage type comparison to the July 2017 gain meaningless. The April to July gain was 134,235 AF, which was 101 percent of average. The maximum computed daily river gain of 1,689 cfs occurred on May 23, 2017, and the daily computed Glendo Reservoir inflow peaked on June 18, 2017, at 4,471 cfs. Figure 6 depicts a comparison of average, WY 2016 and WY 2017 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 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 at elevation 4,635.0 feet, 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 4,635 feet, outlet works discharges should typically remain below 5,500 cfs. This 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 25 cfs. This provides a reliable water source for the downstream wetland area resulting in fish and wildlife benefits.

Glendo Reservoir storage was 152,642 AF at the beginning of WY 2017, which was 121 percent of average and 31 percent of the active conservation of 492,022 AF. Water releases from Glendo Reservoir were initiated on April 13, 2017 in order to move water to the Inland Lakes. The reservoir reached a maximum storage of 487,478 AF, elevation 4,634.62 feet on May 29, 2017. At the end of WY 2017, Glendo Reservoir contained 111,946 AF, elevation 4,586.86 feet, 89 percent of average and 23 percent of top of active conservation. Figure 7 depicts WY 2016 and WY 2017 end of month reservoir storage compared to average. Table 5 depicts a summary of Glendo Reservoir information for WY 2017.

**Table 5** Glendo Reservoir Hydrologic Data for Water Year 2017

Reservoir Allocations	Elevation (FT)	Storage (AF)	Storage Allocation (AF)
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		

Storage-Elevation Data	Elevation (FT)	Storage (AF)	Date
Beginning of water year	4,595.10	152,642	Oct 1, 2016 <sup>1</sup>
End of water year	4,586.86	111,946	30-Sep-17
Annual Low	4,580.00	84,101	Sep 15, 2017
Historic Low	4,548.10	15,140	28-Sep-66
Annual High	4,634.62	487,478	29-May-17
Historic High	4,650.94	758,830	May 28, 1973

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

Inflow-Outflow Data	Inflow	Date	Outflow <sup>2</sup>	Date
Annual Total (AF)	1,265,997	Oct 2016–Sep 2017	1,277,105	Oct 2016–Sep 2017
Daily Peak (CFS)	4,471	18-Jun-17	8,019	26-Jul-17
Daily Minimum (CFS)	119	8-Dec-16	1 <sup>4</sup>	1-Oct-16
Peak Bypass Release (CFS)			4,271	25-Jul-17
Total Bypass Release (AF)			203,249 <sup>3</sup>	Oct 2016–Sep 2017

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

<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.

Month	Gain from Alcova		Inflow <sup>7</sup>		Outflow		Content <sup>8</sup>	
	KAF	% of Avg. <sup>5</sup>	KAF	% of Avg. <sup>5</sup>	KAF	% of Avg. <sup>5</sup>	KAF	% of Avg. <sup>5</sup>
October	9.4	85	39.4	74	0.1	36	190.5	109
November	9.8	94	40.1	84	0.1	96	229.7	105
December	6.4	93	36.3	86	0.1	76	265.6	103
January	12.4	123	42.2	96	0.1	76	307.4	102
February	17	143	44.1	103	0.1	56	350.4	103
March	22.3	122	84	126	1	56	432.5	111
April	42.6	102	142.9	138	105.9	210	466.3	106
May	61	89	199.3	125	174.7	145	487.1	103
June	24.6	103	228.6	141	248.5	155	461.2	98
July	6.3	NA <sup>4</sup>	179	116	316.8	103	316.9	102
August	4.8	792	140.7	108	287.7	101	166.8	111
September	4.9	57	89.4	122	142.9	149	111.9	89
Annual	221.5	105	1266	117	1278	122		

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

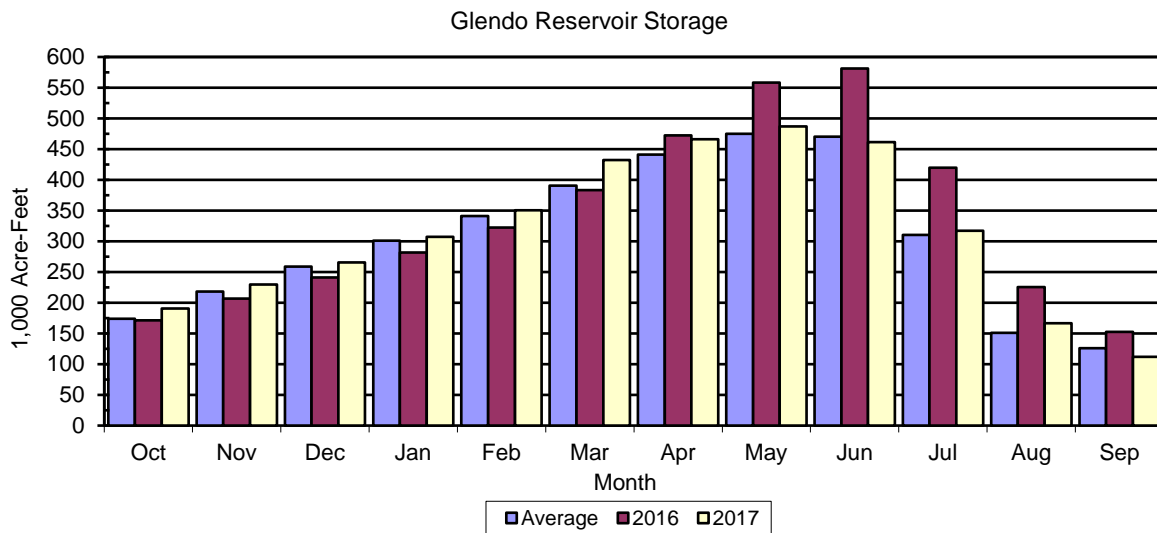
<sup>5</sup> 30 year average is the period (1987-2016)

<sup>6</sup> 23 year average is the period (1994-2016) 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 23 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

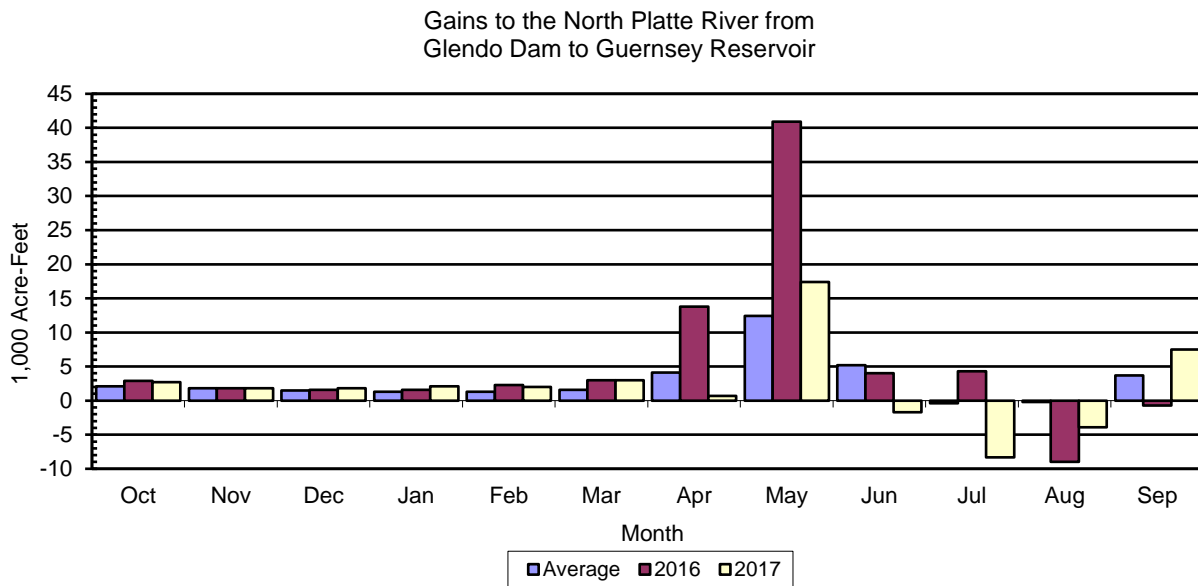




**Figure 7** Glendo Reservoir Storage

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

The river gains between Glendo Dam and Guernsey Dam during WY 2017 were at or above average for 7 months of the year. April, June, July, and August gains were below average. The Glendo Dam to Guernsey Reservoir river gains ranged from a high of 203 percent of average in September 2017 to a low of 17 percent in April 2017. The months of June, July, and August had negative values which made a percentage value meaningless. On July 25, 2017 the daily computed inflow to Guernsey Reservoir peaked at 8,046 cfs. Figure 8 depicts a comparison of average of WY 2016 and WY 2017 monthly river gains.



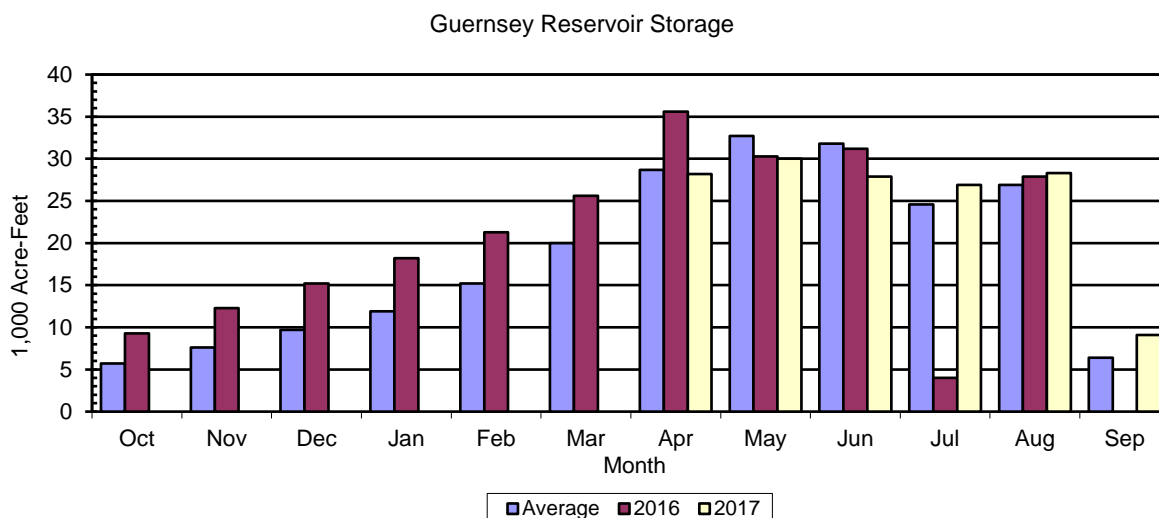
**Figure 8** Gains to the North Platte River from Glendo Dam to Guernsey Reservoir

## Guernsey Reservoir Storage and Releases

Guernsey Dam located about 25 miles below Glendo Dam, stores and re-regulates the flow of the river prior to delivery of storage water to project lands of the 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 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 used for irrigation releases to supplement the maximum powerplant releases.

The original capacity of the reservoir 73,800 AF, has been greatly reduced by deposition of silt. Using 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 2017, storage in Guernsey Reservoir was evacuated to accommodate work on Guernsey spillway's North Gate. Reclamation began filling Guernsey on April 13, 2017 and releases commenced on April 17, 2017 to move water into the Inland Lakes. The annual silt run from the reservoir was initiated on July 10, 2017 and continued for 14 days. 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 575 AF occurred on July 11, 2017. Following the silt run, the reservoir was refilled to 28,000 AF. The reservoir reached a low of 9,078 AF on September 30, 2017 and peaked at 30,892 AF on May 23, 2017. See Figure 9 for WY 2016 and WY 2017 storage compared to average.



**Figure 9** Guernsey Reservoir Storage

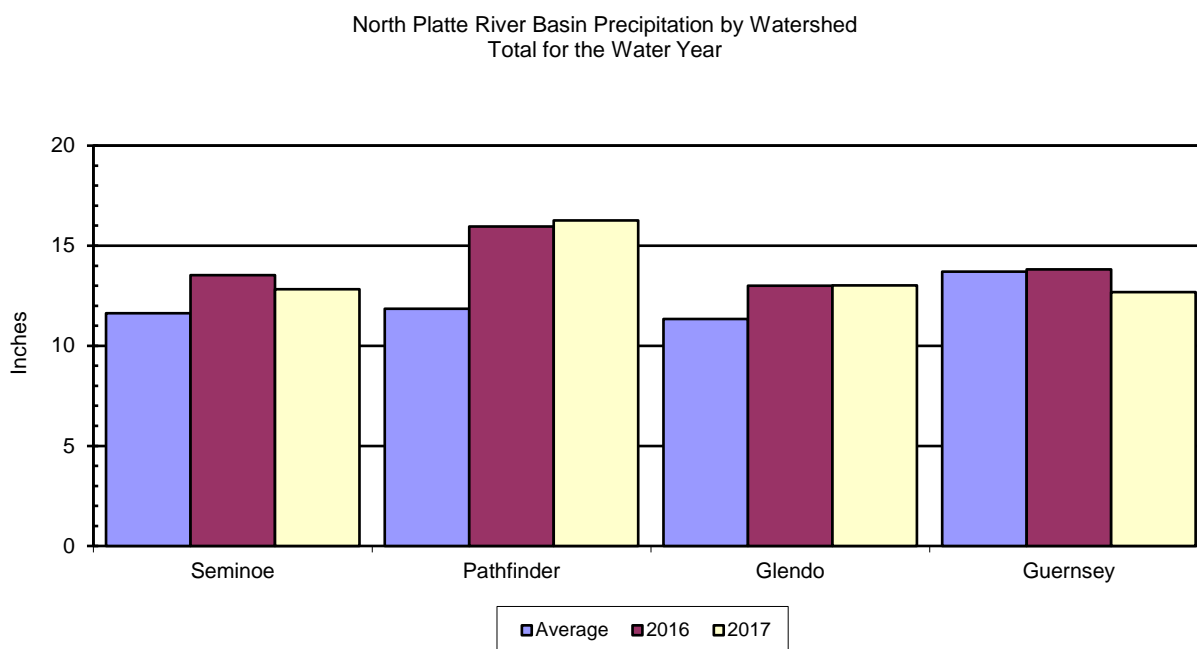
## Precipitation Summary for Water Year 2017

The 2017 precipitation was at or above average for the Basin with the exception of Guernsey basin. Eight months of the year precipitation was above the thirty year average for Seminoe, nine months for Pathfinder and Glendo Reservoirs, and six months for Guernsey Reservoir. Precipitation for WY 2017 ranged from 137 percent of average in the Pathfinder basin to

93 percent of average in the Guernsey basin. Seminole basin was at 110 percent of average and Glendo basin was at 115 percent of average for WY 2017. Watershed precipitation in each basin is calculated as an average of the precipitation readings of several stations.

There was significant precipitation in the Pathfinder, Glendo, and Guernsey watersheds in March and April 2017, however, precipitation in the Seminole basin was well below average for March and April. The Seminole basin precipitation was the lowest at 45 percent of average for March and 89 percent of average for April. The Pathfinder basin precipitation was 321 percent of average for March and 163 percent of average for April. The Glendo basin precipitation was 209 percent of average for March and 162 percent of average for April. The Guernsey basin precipitation was 189 percent of average for March and 119 percent of average for April.

See Figure 10 for a comparison of average, WY 2016 and WY 2017 total precipitation.



**Figure 10** North Platte River Basin Precipitation by Watershed Total for Water Year 2017

### Snow pack Summary for Water Year 2017

Reclamation relies on the Natural Resources Conservation Service (NRCS) to provide snow water equivalent (SWE) information for the three drainage areas in which Reclamation forecasts snowmelt runoff. On February 1, 2017 the SWE above Seminole Reservoir started at 123 percent, increased 5 percent by March 1, 2017, and finished at 91 percent on May 1, 2017. In the Sweetwater River watershed, the SWE started at 192 percent on February 1, 2017, peaked at 239 percent on March 1, 2017, and finished at 232 percent by May 1, 2017. The SWE in the Alcova Dam to Glendo Reservoir watershed began at 109 percent on February 1, 2017, peaked at 113 percent by March 1, 2017 and finished at 101 percent on May 1, 2017. Table 6 shows a summary of snowpack for WY 2017.

**Table 6** North Platte Snowpack Water Content for 2017

Watershed	Feb 1		Mar 1		Apr 1		May 1	
	SWE <sup>1</sup>	% of Median <sup>2</sup>	SWE <sup>1</sup>	% of Median <sup>2</sup>	SWE <sup>1</sup>	% of Median <sup>2</sup>	SWE <sup>1</sup>	% of Median <sup>2</sup>
Seminole Reservoir	17.8	123	22.8	128	22.7	97	23.0	91
Pathfinder Reservoir	17.6	192	26.5	239	31.6	214	35.9	232
Glendo Reservoir	6.8	109	9.6	113	10.4	95	9.1	101

<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 2017

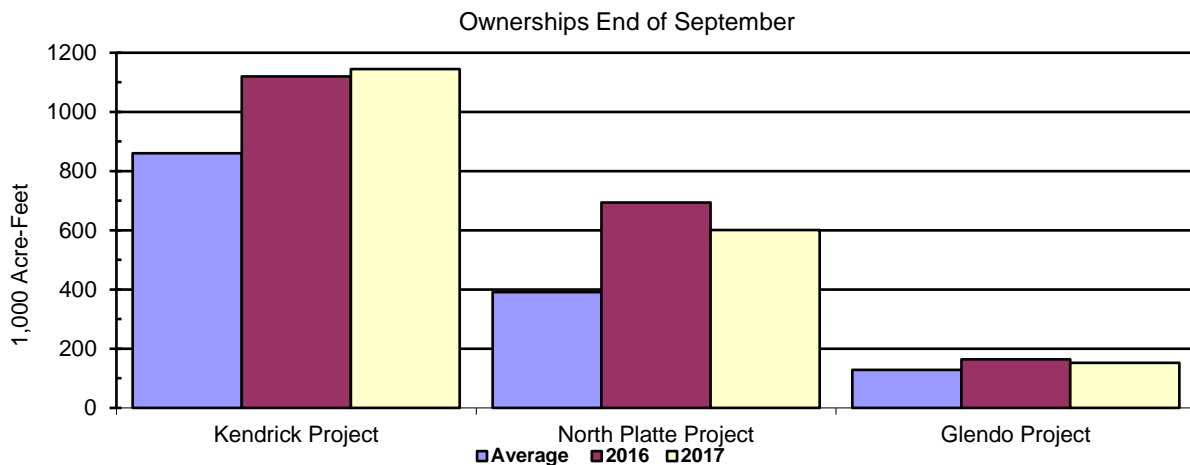
An allocation was not required due to the above average carryover entering WY 2017 and timely spring precipitation.

### Ownerships for Water Year 2017

Stored water which is held in accounts for various entities is referred to as their ownership. At the beginning of WY 2017, the Project ownership (includes North Platte Pathfinder and North Platte Guernsey), contained 694,346 AF of water which is 178 percent of average. The Kendrick ownership contained 1,119,624 AF of water which is 130 percent of average. The Glendo ownership contained 164,149 AF of water which is 127 percent of average.

The total amount of water stored at the end of WY 2017 in the mainstem reservoirs for use in WY 2017 was 1,913,299 AF which was 137 percent of average.

At the end of WY 2017, the Project ownership (includes North Platte Pathfinder and North Platte Guernsey), contained 600,892 AF of water which is 151 percent of average. The Glendo ownership contained 152,592 AF of water which is 118 percent of average. The Kendrick ownership contained 1,144,253 AF which is 133 percent of average. The Operational/Re-regulation water account contained 7,960 AF. Also stored in the North Platte storage system was 5,602 AF for the city of Cheyenne, zero 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 2017.



**Figure 11** Ownership End of September

### North Platte River Forecast 2017

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

Runoff forecasts for the Seminole Reservoir watershed, the Sweetwater River above Pathfinder Reservoir, and the North Platte River from Alcova Dam to Glendo Reservoir are based on 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 2017.

**Table 7** Summary of Forecasts of April-July Runoff for Water Year 2017

Forecast Points	Feb 1		Mar 1		Apr 1		May 1		Actual April-July KAF	% of April-July Avg. <sup>1</sup>
	KAF	% of Avg.	KAF	% of Avg.	KAF	% of Avg.	KAF	% of Avg.		
Seminole Reservoir	900	132	975	143	775	113	650 <sup>2</sup>	95	705.1	103
Sweetwater River	90	180	160	320	160	319	180 <sup>3</sup>	359	159.3	318
Alcova to Glendo	130	93	130	97	130	97	150 <sup>4</sup>	112	134.5	101

<sup>1</sup> Average is based on the 1987-2016 period.

<sup>2</sup> The May 1 forecast includes an actual April inflow of 130,092 AF.

<sup>3</sup> The May 1 forecast includes an actual April inflow of 32,791 AF.

<sup>4</sup> The May 1 forecast includes an actual April inflow of 42,620 AF.

Table 8 Summary of North Platte River System Ownership for Water Year 2017

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Summary of North Platte River Systems Ownerships for Water Year 2017 (Acre-Feet)														
Months	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
<b>Pathfinder Ownership</b>														
Evaporation		-5,825	-874	-2,811	-660	-788	-728	-9,647	-7,811	-12,479	-14,704	-10,310	-6,115	-72,550
Accrual		25,173	24,209	29,914	34,160	52,765	108,981	119,423	8,731	12,479	0	0	0	415,835
Delivery		0	0	0	0	0	0	0	0	0	-95,789	-230,046	-124,703	-450,538
A/ PP&L payback		0	0	0	0	0	0	0	234	780	4,716	0	0	5,730
Evaporation payback										0				0
Re-Regulation transfer												0	0	0
Ownership total		713,694	737,229	764,332	797,832	849,809	958,064	1,067,840	1,068,904	1,069,774	963,997	723,641	592,823	
Actual Ownership	694,346	713,694	737,229	764,332	797,832	849,809	958,064	1,067,840	1,068,904	1,069,774	963,997	723,641	592,823	
<b>Kendrick Ownership</b>														
Evaporation		-5,349	-840	-3,466	-780	-902	-780	-9,025	-6,947	-12,433	-13,195	-7,717	-3,889	-65,323
Accrual		0	0	0	0	0	0	26,794	183,349	12,433	4,505	0	0	227,081
Delivery		0	0	0	0	0	0	-50,000	-50,000	0	-14,277	-13,127	-9,725	-137,129
Evaporation payback										0	0	0	0	0
Re-Regulation transfer							0	0	0	0	0	0	0	0
Ownership total		1,114,275	1,113,435	1,109,969	1,109,189	1,108,287	1,107,507	1,075,276	1,201,678	1,201,678	1,178,711	1,157,867	1,144,253	
Actual Ownership	1,119,624	1,114,275	1,113,435	1,109,969	1,109,189	1,108,287	1,107,507	1,075,276	1,201,678	1,201,678	1,178,711	1,157,867	1,144,253	
<b>Glendo Ownership</b>														
Evaporation		-1,764	-584	-259	-167	-158	-1,556	-853	-1,854	-2,983	-3,816	-3,010	-2,466	-19,470
Accrual		0	0	0	0	0	7,514	0	7,195	0	973	0	0	15,682
B/ Delivery		0	0	0	0	0	0	0	0	0	-3,670	-3,367	-4,048	-11,085
Evaporation payback										2,983	333	0	0	3,316
Ownership total		162,385	161,801	161,542	161,375	161,217	167,175	166,322	171,663	171,663	165,483	159,106	152,592	
Actual Ownership	164,149	162,385	161,801	161,542	161,375	161,217	167,175	166,322	171,663	171,663	165,483	159,106	152,592	
<b>Guernsey Ownership</b>														
Evaporation		0	0	-14	-44	-54	-557	-598	-775	-1,206	-708	0	0	-3,954
Accrual		0	0	6,320	12,302	16,937	4,770	0	7,325	0	0	0	0	47,654
B/ Delivery		0	0	0	0	0	0	0	0	0	-45,355	0	8,069	-37,286
Evaporation payback										1,206	449	0	0	1,655
Re-Regulation transfer												0	0	0
Ownership total		0	0	6,306	18,564	35,447	39,660	39,062	45,612	45,612	0	0	8,069	
Actual Ownership	0	0	0	6,306	18,564	35,447	39,660	39,062	45,612	45,612	0	0	8,069	
<b>Inland Lakes</b>														
Evaporation		-39	-47	-41	-30	-28	-131	-221	-86	0	0	0	0	-623
Accrual		9,354	9,638	0	0	0	0	20,896	0	0	0	0	0	39,888
C/ Delivery		0	0	0	0	0	0	-8,118	-31,147	0	0	0	0	-39,265
Ownership total		9,315	18,906	18,865	18,835	18,807	18,676	31,233	0	0	0	0	0	
Actual Ownership	0	9,315	18,906	18,865	18,835	18,807	18,676	31,233	0	0	0	0	0	

Table 8 (Continued) Summary of North Platte River System Ownership for Water Year 2017

Page 2 of 3

Summary of North Platte River Systems Ownerships for Water Year 2017 (Acre-Feet)													
Months	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL													
<b>City of Cheyenne</b>													
Evaporation		-45	-1	-24	0	-2	0	-101	-56	-41	-53	-35	-17
Stored		919	678	892	828	819	598	404	0	1,223	511	774	1,114
Used		-204	-161	-208	-291	-170	-159	-1,336	-6,554	-781	-455	-115	-276
Ownership total		8,599	9,115	9,775	10,312	10,959	11,398	10,363	3,753	4,154	4,157	4,781	5,802
Actual Ownership	7,929	8,599	9,115	9,775	10,312	10,959	11,398	10,363	3,753	4,154	4,157	4,781	5,802
<b>Pacific Corp (PP&amp;L)</b>													
Evaporation		-17	-3	-2	0	0	-10	-13	-17	-29	-31	-27	-26
Accrual		0	0	0	0	0	0	0	73	29	31	27	26
Delivery		0	0	0	0	0	0	-11	0	0	0	0	0
Ownership total		1,983	1,980	1,978	1,978	1,978	1,968	1,944	2,000	2,000	2,000	2,000	2,000
Actual Ownership	2,000	1,983	1,980	1,978	1,978	1,978	1,968	1,944	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
Accrual		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
Ownership total		0	0	0	0	0	0	0	0	0	0	0	0
Actual Ownership	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Operational Ownership</b>													
Evaporation		-119	-58	-33	-16	-2	-79	-93	-114	-190	-222	-147	-110
Accrual		0	0	0	0	0	-43	0	256	0	78	0	291
Delivery		0	0	0	0	0	730	0	0	-2,524	-2,439	-1,694	-5,927
Evaporation payback										190	0	0	190
Ownership total		14,452	14,394	14,361	14,345	14,343	14,951	14,858	15,000	15,000	12,332	9,746	7,942
Actual Ownership	14,571	14,452	14,394	14,361	14,345	14,343	14,951	14,858	15,000	15,000	12,332	9,746	7,942
<b>Re-Regulation Water</b>													
Evaporation		-66	-26	-4	0	0	-70	-133	-345	-1,267	-298	0	-18
Accrual		0	0	0	0	0	9,280	62,380	188,299	13,878	-79,552	0	25,971
Delivery		0	0	0	0	0	0	-59,937	-208,932	55,423	-11,054	0	-25,953
Evaporation Payback										-29,291	0	0	-29,291
Re-Regulation Transfer							0	0	0	0	0	0	0
Ownership total		8,136	8,110	8,106	8,106	8,106	17,316	19,626	-1,352	90,902	0	0	0
Actual Ownership	8,202	8,136	8,110	8,106	8,106	8,106	17,316	19,626	52,159	90,902	0	0	18

**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, 2017, until July 9, 2017, when the last 18 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, 39,265 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 2017**

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

HYDROLOGY OPERATIONS

Seminole Reservoir Operations			Initial Content				797.8 Kaf		Operating Limits:			Max	1017.3	Kaf, 6357.00 Ft.	
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	31.7	Kaf, 6239.02 Ft.	
			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Total Inflow	kaf	22.3	22.6	25.9	27.4	44.2	92.5	130.1	234.3	268.3	72.5	29.3	15.9		
Total Inflow	cfs	363.	380.	421.	446.	796.	1504.	2186.	3811.	4509.	1179.	477.	267.		
Turbine Release	kaf	32.2	32.0	33.0	32.8	46.1	74.3	159.0	118.4	188.9	72.8	61.6	35.9		
Jetflow Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4	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	33.2	32.0	33.1	32.8	46.1	74.3	159.0	118.4	220.8	72.8	61.6	35.9		
Total Release	cfs	541.	538.	538.	533.	830.	1208.	2671.	1926.	3711.	1184.	1002.	603.		
Evaporation	kaf	3.8	0.6	2.6	0.6	0.7	0.6	7.0	5.4	9.9	10.5	5.5	2.6		
End-month content	kaf	783.0	773.0	763.2	757.3	754.7	772.3	736.5	847.0	884.5	873.7	835.8	813.3		
End-month elevation	ft	6344.2	6343.6	6343.0	6342.7	6342.5	6343.6	6341.4	6348.0	6350.1	6349.5	6347.4	6346.1		
Kortes Reservoir Operations			Initial Content				4.7 Kaf		Operating Limits:			Max	4.8	Kaf, 6142.73 Ft.	
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	1.7	Kaf, 6092.73 Ft.	
			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Total Inflow	kaf	33.2	32.0	33.1	32.8	46.1	74.3	159.0	118.4	220.8	72.8	61.6	35.9		
Total Inflow	cfs	541.	538.	538.	533.	830.	1208.	2671.	1926.	3711.	1184.	1002.	603.		
Turbine Release	kaf	33.2	31.3	32.3	32.8	35.9	42.5	91.7	88.3	78.8	72.3	61.1	35.8		
Spillway Release	kaf	0.0	0.7	0.8	0.0	10.2	31.8	67.3	30.1	142.0	0.5	0.5	0.0		
Total Release	kaf	33.2	32.0	33.1	32.8	46.1	74.3	159.0	118.4	220.8	72.8	61.6	35.8		
Total Release	cfs	540.	538.	537.	533.	828.	1210.	2668.	1927.	3712.	1184.	1002.	602.		
Pathfinder Reservoir Operations			Initial Content				873.4 Kaf		Operating Limits:			Max	1095.0	Kaf, 5853.56 Ft.	
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	31.4	Kaf, 5746.00 Ft.	
			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Sweetwater Inflow	kaf	3.5	4.6	3.0	3.3	4.5	12.4	32.8	60.3	53.5	12.7	5.6	3.2		
Kortes-Path Gain	kaf	4.1	1.6	5.5	8.3	10.8	19.6	29.1	36.5	51.0	11.2	4.7	6.4		
Inflow from Kortes	kaf	7.6	6.2	8.5	11.6	15.3	32.0	61.9	96.8	104.5	23.9	10.3	9.6		
Total Inflow	kaf	37.3	33.6	38.6	41.1	56.8	94.0	187.8	154.9	271.9	84.0	66.3	42.2		
Total Inflow	cfs	607.	564.	627.	668.	1022.	1529.	3156.	2519.	4569.	1366.	1078.	708.		
Turbine Release	kaf	4.6	24.1	26.7	26.6	23.8	61.6	132.0	134.0	143.2	150.4	133.8	77.1		
Jetflow Release	kaf	4.7	4.5	4.6	4.6	4.2	4.7	5.2	11.6	86.8	36.7	5.9	4.7		
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		
Total Release	kaf	9.2	28.6	31.3	31.2	28.0	66.2	137.1	145.5	230.0	187.1	139.7	81.8		
Total Release	cfs	149.	480.	508.	507.	504.	1077.	2304.	2367.	3866.	3043.	2272.	1375.		
Evaporation	kaf	6.7	0.7	3.2	0.7	0.9	0.8	9.7	7.6	12.1	14.0	9.9	7.0		
End-month content	kaf	894.9	899.1	903.2	912.4	940.3	967.3	1008.4	1010.1	1039.8	922.7	839.3	792.8		
End-month elevation	ft	5844.3	5844.6	5844.8	5845.2	5846.6	5847.8	5849.7	5849.8	5851.2	5845.7	5841.5	5839.1		
Alcova Reservoir Operations			Initial Content				180.5 Kaf		Operating Limits:			Max	184.4	Kaf, 5500.00 Ft.	
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	145.3	Kaf, 5483.12 Ft.	
			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Total Inflow	kaf	9.2	28.6	31.3	31.2	28.0	66.2	137.1	145.5	230.0	187.1	139.7	81.8		
Total Inflow	cfs	149.	480.	508.	507.	504.	1077.	2304.	2367.	3866.	3043.	2272.	1375.		
Turbine Release	kaf	30.8	29.7	30.7	31.0	27.9	65.1	113.7	138.9	214.9	164.6	125.0	69.5		
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	15.2	0.0	0.0	0.0		
Casper Canal Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	13.5	21.4	13.1	11.9		
Total Release	kaf	30.8	29.7	30.7	31.0	27.9	65.1	113.7	144.8	228.4	186.0	138.1	81.4		
Total Release	cfs	500.	499.	499.	504.	502.	1058.	1911.	2355.	3838.	3024.	2246.	1368.		
Evaporation	kaf	0.8	0.1	0.4	0.1	0.1	0.1	1.1	0.9	1.3	1.6	1.2	0.9		
End-month content	kaf	158.1	156.9	157.1	157.3	157.3	158.3	180.7	180.5	180.8	180.4	180.8	180.3		
End-month elevation	ft	5488.9	5488.4	5488.5	5488.5	5488.6	5489.0	5498.5	5498.4	5498.6	5498.4	5498.5	5498.3		

**Table 9 (Continued) Actual Reservoir Operations for Water Year 2017**

NORTH PLATTE RIVER OPERATING PLAN														
Year Beginning Oct 2017														
Gray Reef Reservoir Operations			Initial Content		1.8 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	30.7	29.7	30.7	31.0	27.9	65.1	113.7	138.9	214.9	164.6	125.0	69.5	
Total Inflow	cfs	500.0	499.2	498.9	503.5	501.7	1058.4	1911.3	2259.2	3611.2	2676.9	2032.6	1167.8	
Total Release	kaf	30.8	29.9	30.8	30.8	27.9	65.0	113.7	139.1	214.3	164.8	124.9	69.6	
Total Release	cfs	501.	502.	501.	501.	502.	1057.	1910.	2262.	3602.	2681.	2031.	1170.	
Glendo Reservoir Operations			Initial Content		152.6 Kaf			Operating Limits: Max			789.4 Kaf, 4654.45 Ft.			
								Min			63.2 Kaf, 4573.94 Ft.			
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Alcova-Glendo Gain	kaf	9.4	9.8	6.4	12.4	17.0	22.3	42.6	61.0	24.6	6.0	4.8	4.9	
Infl from Gray Reef	kaf	30.0	30.3	29.9	29.8	27.0	61.6	100.2	138.3	204.1	173.0	135.9	84.5	
Total Inflow	kaf	39.4	40.1	36.3	42.2	44.1	84.0	142.8	199.3	228.6	179.0	140.7	89.4	
Total Inflow	cfs	641.	673.	591.	687.	793.	1366.	2401.	3241.	3842.	2911.	2288.	1503.	
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	103.0	173.1	227.2	228.4	238.3	105.1	
Low Flow Release	kaf	2.2	0.0	0.0	0.0	0.0	0.0	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	1.4	0.0	19.8	86.9	47.9	36.3	
Total Release	kaf	0.1	0.1	0.1	0.1	0.1	0.1	105.9	174.7	248.5	316.8	287.7	142.9	
Total Release	cfs	1.	2.	2.	2.	2.	2.	1779.	2841.	4176.	5152.	4679.	2402.	
Evaporation	kaf	1.5	0.7	0.3	0.3	1.0	1.8	3.1	3.8	6.1	6.5	3.1	1.4	
End-month content	kaf	190.5	229.7	265.6	307.4	350.4	432.5	466.3	487.1	461.2	316.9	166.8	111.9	
End-month elevation	ft	4601.4	4607.1	4611.8	4616.8	4621.6	4629.8	4632.8	4634.6	4632.4	4617.9	4597.6	4586.9	
Guernsey Reservoir Operations			Initial Content		0.5 Kaf			Operating Limits: Max			41.6 Kaf, 4418.28 Ft.			
								Min			0.0 Kaf, 4370.00 Ft.			
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Glendo-Guerns Gain	kaf	2.7	1.8	1.8	2.1	2.0	3.0	0.7	17.4	-1.7	-8.3	-3.9	7.5	
Inflow from Glendo	kaf	0.1	0.1	0.1	0.1	0.1	0.1	105.9	174.7	248.5	316.8	287.6	142.9	
Total Inflow	kaf	2.8	1.9	1.9	2.2	2.1	3.1	106.6	192.1	246.8	308.5	283.7	150.4	
Total Inflow	cfs	46.	32.	32.	36.	38.	50.	1791.	3124.	4148.	5018.	4615.	2527.	
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	12.6	20.0	30.6	13.3	42.2	51.0	
Seepage	kaf	2.6	1.9	1.9	2.2	2.1	3.1	0.4	1.2	3.0	3.1	2.5	0.3	
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	67.8	168.4	214.2	292.7	236.9	117.3	
Total Release	kaf	2.8	1.9	1.9	2.2	2.1	3.1	78.1	189.6	247.9	309.1	281.5	169.0	
Total Release	cfs	46.	32.	32.	36.	38.	50.0	1312.	3084.	4165.	5028.	4579.	2841.	
Evaporation	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	1.0	0.5	0.8	0.5	
End-month content	kaf	0.0	0.0	0.0	0.0	0.0	0.0	28.2	30.0	27.9	26.9	28.3	9.1	
End-month elevation	ft	4370.0	4370.0	4370.0	4370.1	4370.0	4370.0	4412.0	4412.9	4411.9	4411.3	4412.1	4399.4	
Physical EOM Cont	kaf	2032.8	2065.0	2095.2	2140.5	2209.0	2336.7	2426.5	2560.9	2600.8	2326.7	2057.1	1913.3	

## Flood Benefits for Water Year 2017

**Table 10** Flood Damage Prevented by Dams for WY 2017 (on the North Platte River Basin System)

Dams	Water Year 2017	Prior To 2017 <sup>2</sup>	Accumulated Total <sup>1</sup>
Seminole	\$0	\$85,352,500	\$85,352,500
Pathfinder	\$0	\$28,907,600	\$28,907,600
Alcova	\$66,900	\$2,716,700	\$2,783,600
Glendo	\$2,362,400	\$206,930,700	\$209,293,100
Total	\$2,429,300	\$323,907,500	\$326,336,800

<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 2017 except for Glendo Dam, which is 1964 through 2017.

## Generation for Water Year 2017

Power generation was above average for all powerplants in the Basin in WY 2017 except Kortes and Guernsey. See Table 11 for a breakdown of generation by powerplant.

**Table 11** Power Generation Water Year 2017

Powerplant	Gross generation <sup>1</sup> (GWh)	Percent of Average <sup>2</sup>
Seminole	129.6	105
Kortes	113.3	87
Fremont Canyon	290.7	139
Alcova	134.4	128
Glendo	108.7	137
Guernsey	12.5	72
Total Basin	789.2	119

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

<sup>2</sup> 30 year average (1987-2016)

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

Powerplant	Number of Units	Capacity Each Unit (kw)	Total <sup>2</sup> Installed Capacity(kw)	Normal Operating Head (feet)	Output At rated Head (cfs)	30 year Average <sup>1</sup> (GWh)
Seminole	3	15,000 <sup>3</sup>	51,750 <sup>3</sup>	97-227	4,050	123.5
Kortes	3	12,000	36,000	192-204	2,910	130.3
Fremont Canyon	2	33,400	66,800	247-363	3,080	209.1
Alcova	2	19,500	41,400	153-165	4,100	105.2
Glendo	2	19,000	38,000	73-156	3,400	79.1
Guernsey	2	3,200	6,400	89-91	1,340	17.3
Total	14		237,200			664.5

<sup>1</sup> 1987-2016

<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 2018**

Three operation studies were developed for the System to establish an AOP for WY 2018. 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 2018 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 1,913,299 AF at the beginning of the WY 2018. This amount was 137 percent of the 30 year average (1988-2017) and 68 percent of active conservation capacity.

### **Seminole Reservoir**

#### **Most Probable Condition - 2018**

October through March: Seminole Reservoir started WY 2018 with a storage of 813,288 AF, which is 136 percent of the 30-year average and 80 percent of active conservation capacity. Planned turbine releases from Seminole Reservoir are approximately 530 cfs for October through February with an increase to 1,000 cfs in March. Reservoir storage would decrease to about 768,200 AF by March 31, 2018. 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 February 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 2,600 cfs for April, May, June, and July, then decrease to 800 cfs in August, and 550 cfs in September. There is no bypass expected in the most probable scenario. Seminole Reservoir storage will reach a maximum of 949,100 AF by the end of June. Projected carryover storage of about 831,600 AF at the end of WY 2018 would be 139 percent of average and 82 percent of active conservation capacity.

#### **Reasonable Minimum Condition - 2018**

October through March: Planned water release for this period under reasonable minimum inflow condition will be approximately 530 cfs through to March. A release of at least 500 cfs is required

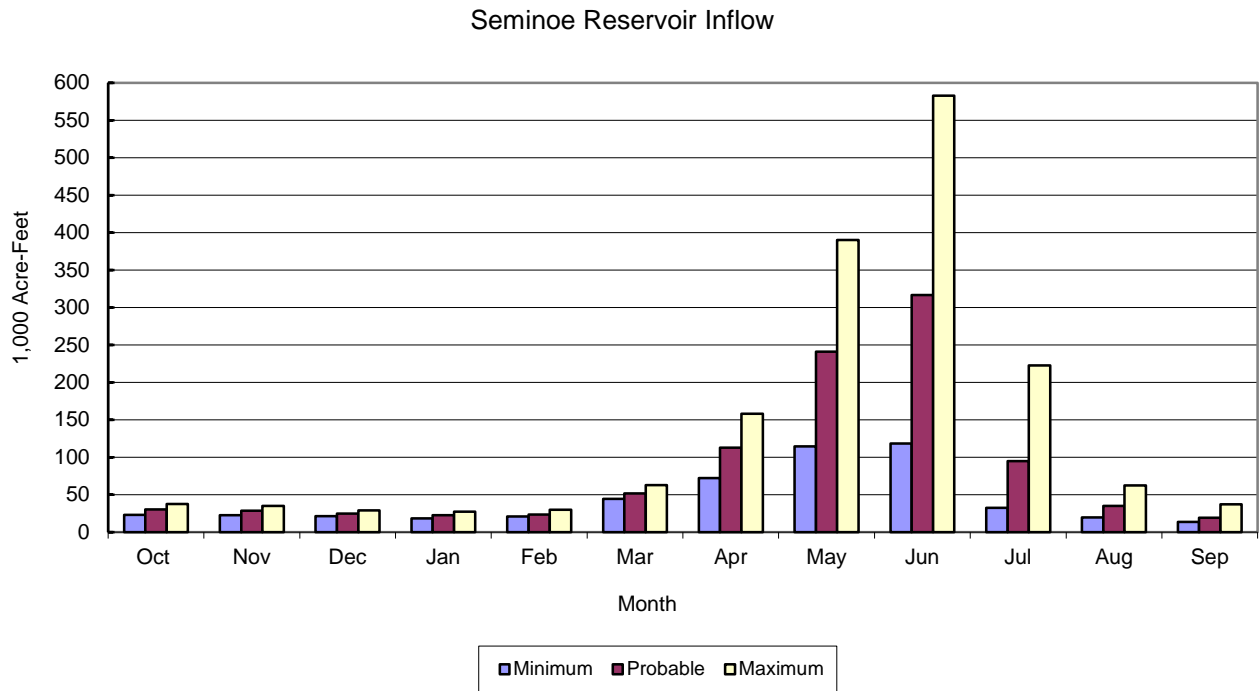
to maintain the minimum flow in the Miracle Mile reach of the river. Under this condition, inflows are predicted to be 149,600 AF for the period, which is 33,700 AF less than the most probable condition. Under these conditions the March 31, 2018 reservoir content is expected to be approximately 746,800 AF.

April through September: Seminole water releases will be at 800 cfs through April, increasing to 1,600 cfs in May, and increasing to approximately 2,500 cfs in June. Releases will decrease through July, August, and September to 2,100 cfs; 1,000 cfs; and 530 cfs; respectively. Under the minimum condition scenario the June content will be approximately 738,100 AF, and the water year will end with a content of 563,800 AF which is 94 percent of average and 55 percent of active conservation capacity.

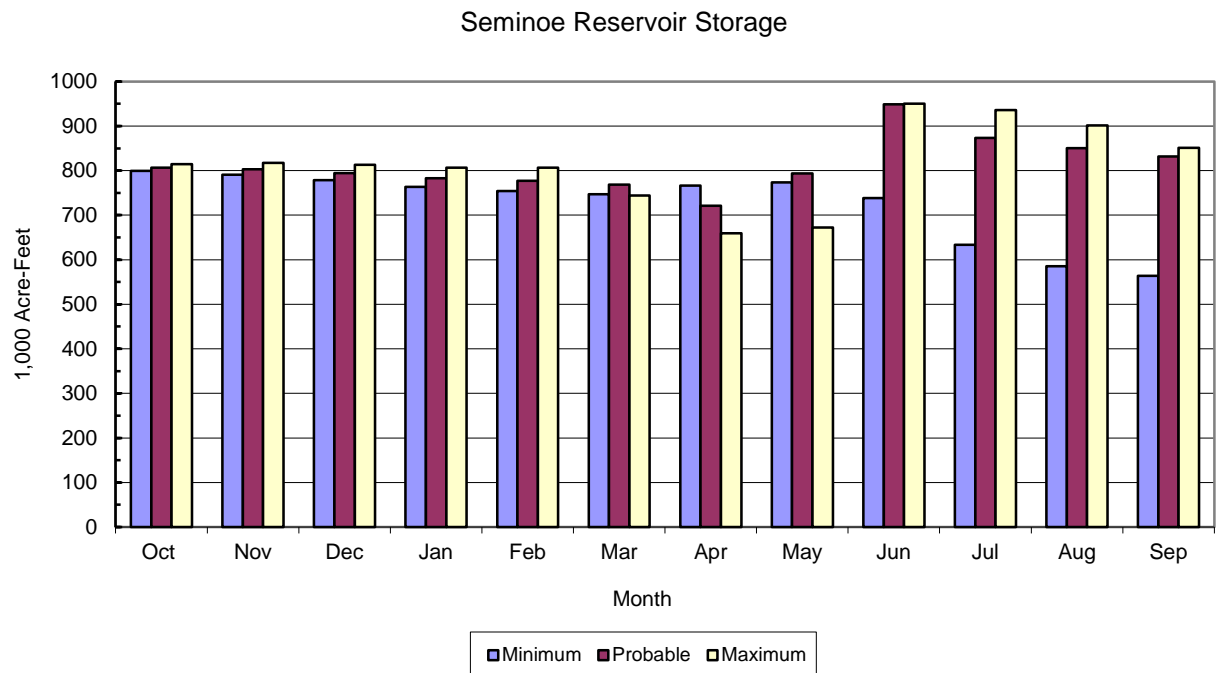
### **Reasonable Maximum Condition - 2018**

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 743,900 AF at the end of March to 950,100 AF by the end of June under these conditions.

April through September: Seminole Reservoir release for March will be approximately 2,000 cfs, then releases will increase to about 4,000 cfs in April, 6,000 cfs in May, then decrease to 5,000 cfs in June. Releases will then decrease to approximately 3,700 cfs in July and to approximately 1,400 cfs for August and September. Inflows for the April to July period will be approximately 1,353,100 AF, which is 585,800 AF more than the most probable runoff condition. Seminole Reservoir will reach its maximum end of month content for the year in June with approximately 950,100 AF in storage. This plan of operation would result in an end of year carryover storage of 851,400 AF, which would be 143 percent of average and 84 percent of active conservation capacity. Figure 12 depicts a comparison of Minimum, Most Probable, and Maximum Seminole Inflows. Figure 13 depicts a comparison of Minimum, Most Probable, and Maximum Seminole Storage.



**Figure 12** Seminole Reservoir Inflow (Predicted for Water Year 2018)



**Figure 13** Seminole Reservoir Storage (Predicted for Water Year 2018)

## **Pathfinder Reservoir**

### **Most Probable Condition - 2018**

October through March: Pathfinder Reservoir started WY 2018 with a storage of 792,751 AF which is 163 percent of the 30 year average and 74 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 31,500 AF for the October to March period under the most probable inflow conditions. 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 851,400 AF at the end of March 2018.

April through September: Pathfinder Reservoir storage will reach a maximum content of about 1,000,100 AF by the end of May and be drawn down to a storage content of about 828,400 AF by the end of WY 2018, which would be 170 percent of average. River gains between Kortes Dam and Pathfinder Dam, including the Sweetwater River, are estimated at about 75,400 AF for the April to July period under most probable inflow conditions. 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 plus or minus 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, 1,400 cfs in April, 1,900 cfs in May, and 3,100 cfs in June. Releases will decrease to 2,700 cfs for July, 2,600 for August, and approximately 900 cfs in September.

### **Reasonable Minimum Condition – 2018**

October through March: Under this condition, river gains between Kortes Dam and Pathfinder Dam, including the Sweetwater River, are expected to be 12,700 AF for the October to March period. Pathfinder Reservoir storage will decline to about 817,200 AF by the end of February. 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 22,200 AF for the April to 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 2018.

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 3,500 cfs,

during July, and then reduced as irrigation demands drop off to end the water year at approximately 1,000 cfs during September. If reasonable minimum runoff develops, Pathfinder reservoir content at the end of the water year will be about 366,800 AF, which would be 75 percent of average and 34 percent of active conservation capacity.

### Reasonable Maximum Condition - 2018

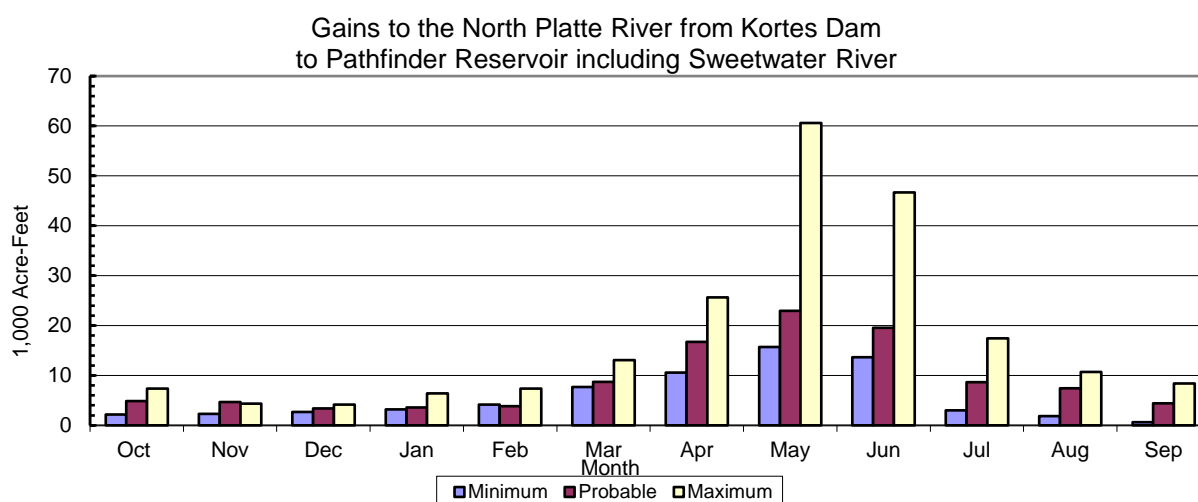
October through March: Under this condition, river gains between Kortes Dam and Pathfinder Dam are expected to be 50,300 AF for the period. Pathfinder Reservoir content decreases through this period from 820,200 AF at the end of October to 796,300 AF by the end of March.

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 1,070,200 AF at the end of June. Releases will increase to approximately 3,000 cfs in March, 3,500 cfs in April and 3,400 cfs in May, and peaking at 5,700 cfs in June. They will decrease to approximately 4,900 cfs in July, 3,800 cfs in August and 1,500 cfs in September.

The Pathfinder Reservoir end of year storage content is projected to be about 851,400 AF, which would be 175 percent of average, and 80 percent of capacity.

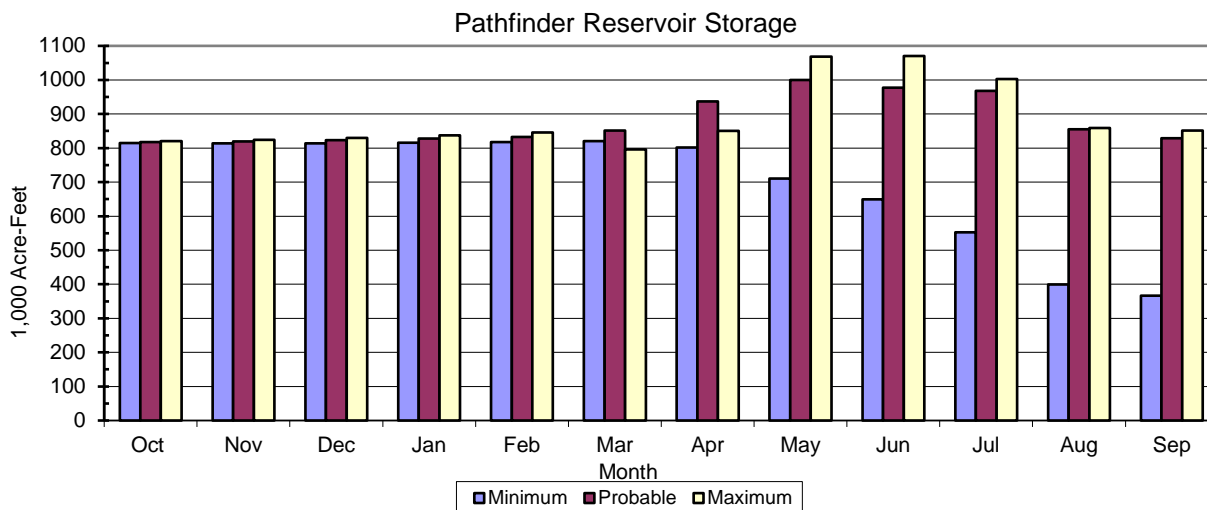
Under all three possible inflow conditions, a constant release of 75 cfs is planned from the Pathfinder Dam outlet works which will provide the necessary water to maintain a year round fishery in the North Platte River below Pathfinder Reservoir. The maximum plan will require a bypass through the jet 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 2018)





**Figure 15** Pathfinder Reservoir Storage (Predicted for Water Year 2018)

### Alcova Reservoir

#### Most Probable Condition - 2018

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 2018 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.

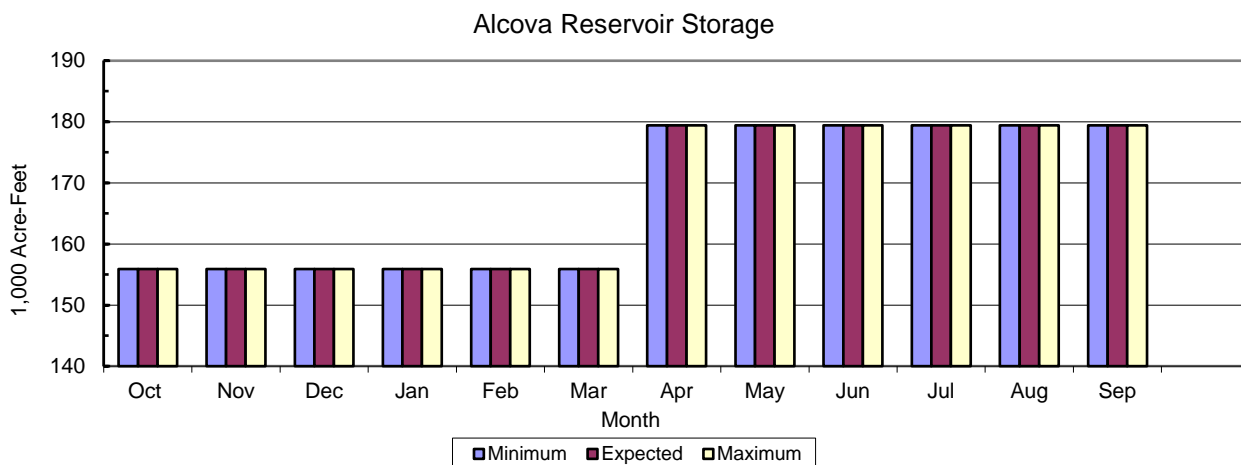
April through September: During April, the reservoir will be refilled to elevation 5,498 feet, 179,400 AF. This level will be maintained within plus or minus 1 foot to provide the necessary water surface elevation to make irrigation deliveries to Casper Canal and for recreational purposes. About 43,000 AF of water are scheduled to be delivered during the May to September period to meet Kendrick Project irrigation requirements. In addition, April releases to the river are scheduled to be approximately 58,300 AF and May to September releases to the river from Alcova Reservoir will total approximately 673,500 AF which will be re-regulated in Gray Reef Reservoir.

#### Reasonable Minimum Condition - 2018

October through September: Operation of Alcova Reservoir would be the same as under the most probable condition, with about 67,000 AF of water scheduled to be delivered during the May to September period to meet Kendrick Project irrigation requirements. April releases are scheduled to be approximately 47,600 AF and May to September releases to the North Platte River from Alcova Reservoir will total approximately 869,200 AF. Water released from Alcova Reservoir will be re-regulated in Gray Reef Reservoir.

## Reasonable Maximum Condition - 2018

October through September: Operation of Alcova Reservoir would be the same as under the most probable condition, with about 26,000 AF of water scheduled to be delivered during the May to September period to meet Kendrick Project irrigation requirements. March releases will be approximately 183,900 AF, and April releases will be approximately 183,300 AF. May to September releases to the North Platte River from Alcova Reservoir will total approximately 1,162,700 AF. Figure 16 depicts a comparison of minimum, most probable, and maximum Alcova Storage.



**Figure 16** Alcova Reservoir Storage (Predicted for Water Year 2018)

## Gray Reef Reservoir

### Most Probable Condition - 2018

October through March: October through February releases 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 in March, 1,000 cfs in April, approximately 1,700 cfs in May, and 2,850 cfs in June. Releases will decrease to 2,400 cfs in July, 2,300 cfs in August, and 740 cfs in September.

### Reasonable Minimum Condition - 2018

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 800 cfs in April, 2,900 cfs in May, 3,100 cfs June, and 3200 cfs in July. The releases will be decreased to approximately 3,100 in August and 800 cfs in September as irrigation water is moved downstream. These predicted flows may be redistributed as the irrigators adjust their use of water from storage.

### **Reasonable Maximum Condition - 2018**

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 3,000 cfs in March.

April through September: The release from Gray Reef Reservoir will increase to approximately 3,100 cfs in April and 3,200 in May. In June the release increases to approximately 5,400 cfs. The July releases will decrease to approximately 4,600 cfs and August releases will decrease to approximately 3,500 cfs. The September releases will decrease to approximately 1,300 cfs.

### **Glendo and Guernsey Reservoirs**

#### **Most Probable Condition - 2018**

October through March: Glendo Reservoir had a storage of 111,946 AF at the beginning of WY 2018, which is 89 percent of average and 23 percent of active conservation capacity of 492,022 AF. Glendo Reservoir storage will increase to approximately 366,300 AF by the end of March, which will be 291 percent of average and 74 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 began WY 2018 with a storage of 9,078 AF, which is 193 percent of average and 20 percent of active conservation capacity. Natural inflow will be stored during the winter which is expected to increase storage to 25,300 AF by March 31, 2018.

April through September: During April, releases from Glendo Reservoir will be scheduled to refill Guernsey Reservoir. Maximum Glendo Reservoir storage will be about 492,000 AF by the end of June. Releases from Glendo Reservoir during the May to September period will be based upon meeting irrigation demand.

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 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 110,000 AF by the end of September 2018.

#### **Reasonable Minimum Condition - 2018**

October through March: Guernsey Reservoir had a storage of 9,078 AF at the beginning of WY 2018. Under the reasonable minimum inflow conditions, natural inflow will be stored during the winter which will increase the Guernsey Reservoir content to 23,300 AF by the end of March. Glendo Reservoir content will increase from the carryover storage of 111,946 AF to an end of March content of 344,400 AF.

April through September: During April, releases from Glendo Reservoir will be scheduled to refill Guernsey Reservoir. Glendo Reservoir storage will increase to about 408,700 AF by the end of May and reach its' highest level of 416,100 AF at the end of June.

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 the Project. The total combined North Platte System reservoir storage would be approximately 739,400 AF lower than most probable conditions by the end of WY 2018 under reasonable minimum water supply conditions.

Guernsey Reservoir will be maintained near 28,000 AF during April to 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 100,000 AF of water in Glendo Reservoir at the end of September. Guernsey Reservoir content will be 2,000 AF at the end of September 2018.

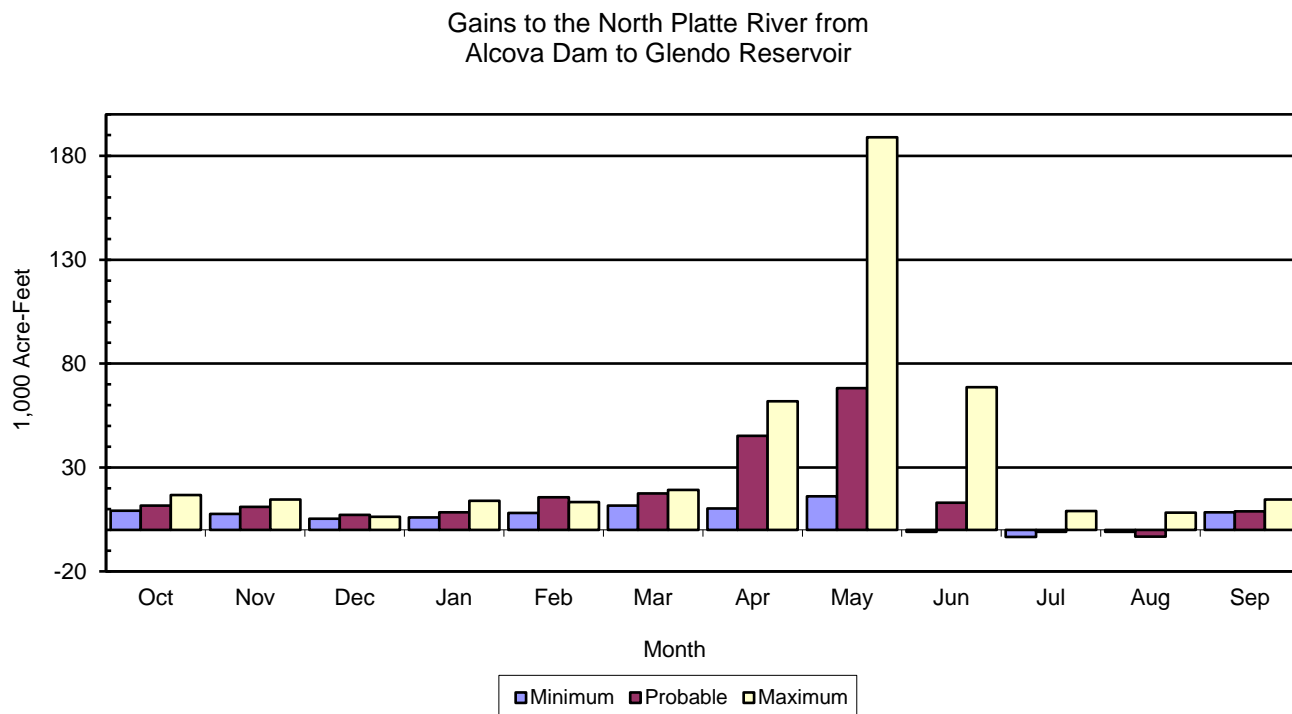
### **Reasonable Maximum Condition – 2018**

October through March: Guernsey Reservoir had a storage of 9,078 AF at the beginning of WY 2018. Natural inflow will be stored during the winter which will increase Guernsey Reservoir content to 28,000 AF by the end of March. Glendo Reservoir content is expected to increase from 111,946 AF to an end of March content of 372,000 AF.

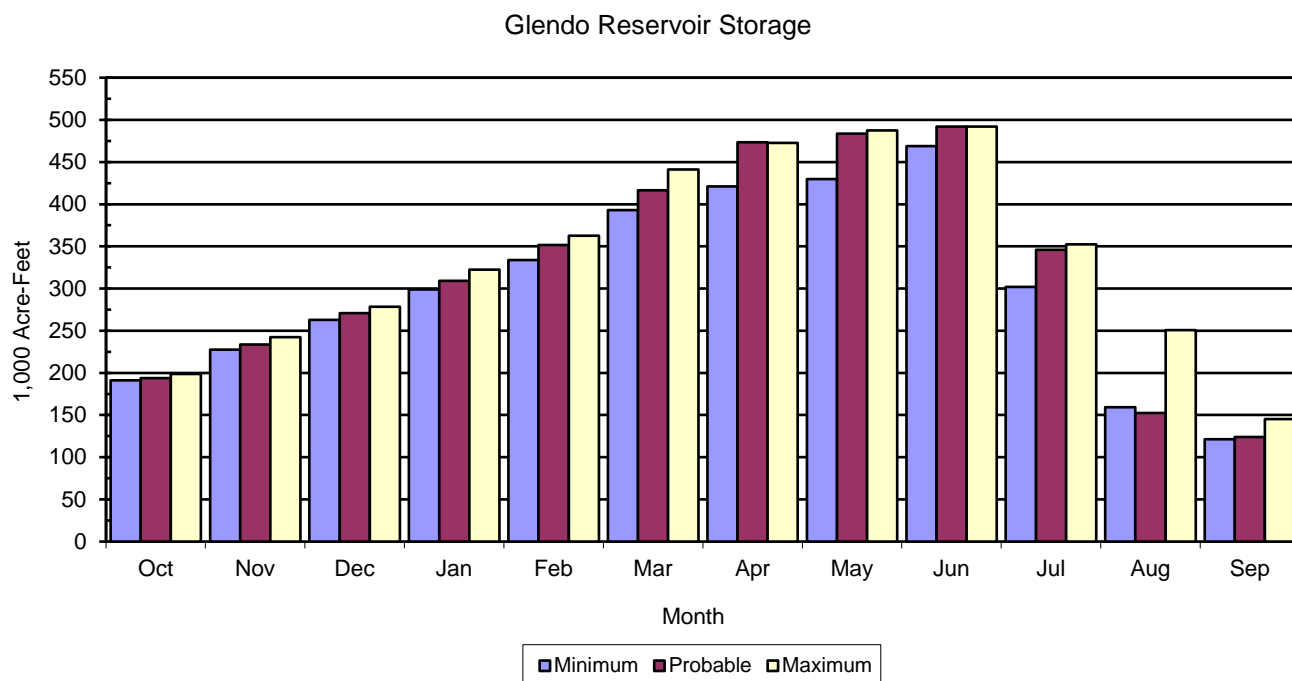
April through September: Under maximum conditions, re-regulation water will be released as natural flow to meet irrigation demands until the supply is used as required. An annual total of 2,099,900 AF will be released from Guernsey Reservoir under reasonable maximum conditions. Guernsey Reservoir will maintain a content of 28,000 AF in May 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 362,300 AF by the end of July and will be about 109,300 AF by the end of September. This end of year Glendo storage would be 87 percent of average and the total System storage at the end of WY 2018 would be 2,000,000 AF, 143 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.



**Figure 17** Gains to North Platte River from Alcova Dam to Glendo Reservoir  
(Predicted for Water Year 2018)



**Figure 18** Glendo Reservoir Storage (Predicted for Water Year 2018)

## Ownerships

### Most Probable Condition - 2018

Stored water which is held in active conservation capacity accounts for various entities is referred to as their ownership. At the close of WY 2018, the Project storage ownership is expected to be 676,700 AF, 170 percent of average; the Kendrick Project storage ownership is expected to be 1,119,400 AF, 130 percent of average. Glendo storage ownership at the end of WY 2018 is expected to be 143,700 AF, 111 percent of average.

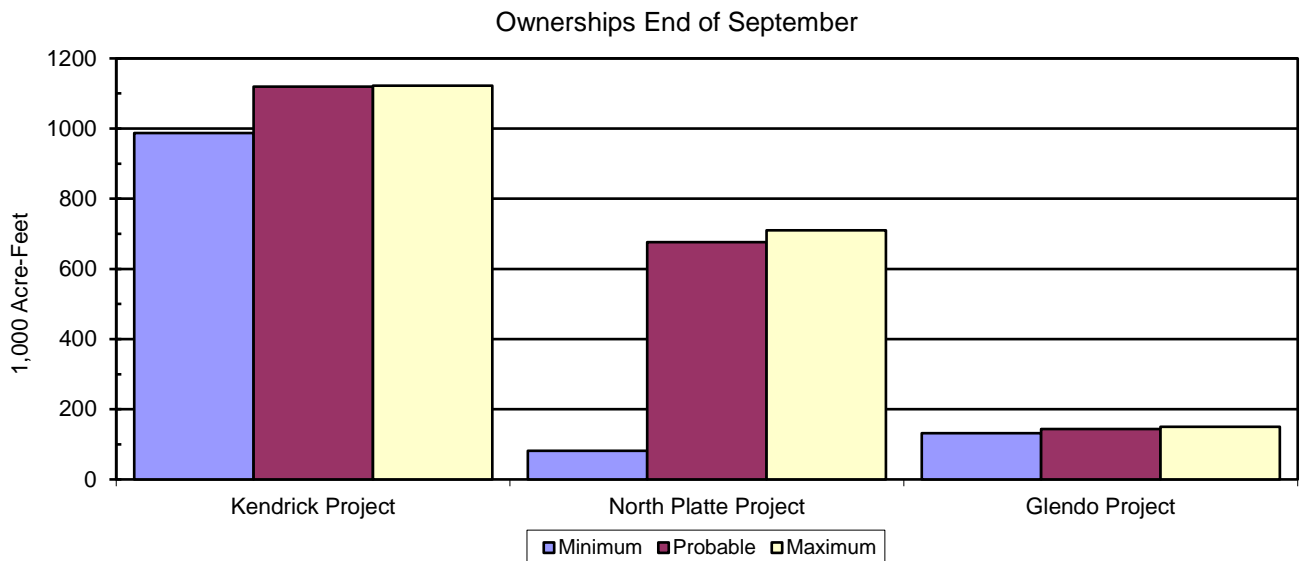
### Reasonable Minimum Condition - 2018

The Project storage ownership is expected to be 82,000 AF, 21 percent of average at the close of WY 2018. At the close of WY 2018 the Kendrick Project storage ownership is expected to be 986,900 AF, 115 percent of average. The Kendrick Project ownership will not accrue any water under the reasonable minimum conditions, and Glendo storage ownership is expected to be 131,600 AF, 102 percent of average at the close of WY 2018.

### Reasonable Maximum Condition - 2018

Under reasonable maximum inflow conditions all storage water ownerships, in the North Platte River system, will fill during WY 2018. About 1,016,700 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 2018.



**Figure 19** Ownerships at the End of September (Predicted for Water Year 2018)

## Most Probable Generation Water Year 2018

The most probable power generation breakdown for each powerplant.

**Table 13** Most Probable Power Generation Water Year 2018

Powerplant	Gross generation <sup>1</sup> (GWh)	Percent of Average <sup>2</sup>
Seminole	162.656	131
Kortes	160.510	123
Fremont Canyon	242.518	115
Alcova	120.042	110
Glendo	87.864	110
Guernsey	19.128	113
Total Basin	792.718	119

<sup>1</sup> Gross generation is based on October 2018 storage and most probable inflow.

Gross generation is reported in gigawatt hours (GWh).

<sup>2</sup> 30 year average (1988-2017)

The Facilities Management Division creates a schedule of maintenance for all generating units. See Table 14 for the maintenance schedule for WY 2018.

**Table 14** Proposed Generating Unit Maintenance Schedule (October 2017 through September 2018)

<b><u>Facility and Unit No.</u></b>	<b><u>Scheduled Period</u></b>	<b><u>Description of Work</u></b>
Seminole Unit 1	01-15-18 through 03-01-18	Annual Maintenance
Seminole Unit 2	02-26-18 through 04-02-18	Annual Maintenance
Seminole Unit 3	10-02-17 through 01-18-18	Annual Maintenance
Kortes Unit 1	07-24-17 through 08-31-17	Annual Maintenance
Kortes Unit 1	10-01-17 through 11-06-17	Exciter Refurbishment
Kortes Unit 2	11-20-17 through 01-11-18	Annual Maintenance
Kortes Unit 3	01-22-18 through 03-15-18	Annual Maintenance
Fremont Unit 1	10-03-17 through 11-14-18	Annual Maintenance
Fremont Unit 2	11-16-17 through 01-09-18	Annual Maintenance
Alcova Unit 1	01-15-18 through 02-22-18	Annual Maintenance

Alcova Unit 2	01-22-18 through 01-24-18	AL SS Under Relay
Alcova Unit 2	02-26-18 through 04-05-18	Annual Maintenance
Glendo Unit 1	10-16-17 through 10-26-17	Penstock Inspection
Glendo Unit 1	10-30-17 through 11-09-17	Switch Move
Glendo Unit 1	12-05-17 through 12-21-17	Annual Maintenance
Glendo Unit 1	12-06-17 through 12-12-17	Station Service
Glendo Unit 1	01-15-18 through 01-18-18	Governor Alignment
Glendo Unit 2	10-16-17 through 10-26-17	Penstock Inspection
Glendo Unit 2	10-30-17 through 11-09-17	Switch Move
Glendo Unit 2	12-06-17 through 12-12-17	Station Service
Glendo Unit 2	01-08-18 through 01-11-18	Governor Alignment
Glendo Unit 2	01-16-17 through 02-08-18	Annual Maintenance
Guernsey Unit 1	10-23-17 through 10-26-17	Penstock Inspection
Guernsey Unit 1	11-07-17 through 11-30-17	Annual Maintenance
Guernsey Unit 1	12-01-17 through 3-29-18	Surge Tank Recoating
Guernsey Unit 2	10-23-17 through 10-26-17	Penstock Inspection
Guernsey Unit 2	12-01-17 through 03-29-18	Surge Tank Recoating
Guernsey Unit 2	02-06-18 through 03-01-18	Annual Maintenance



**Table 15 Most Probable Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 28-Dec-2017 15: 3

Based on Most Probable April - July Inflow: Seminoe 767 kaf, Sweetwater 53 kaf, Glendo 136 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

HYDROLOGY OPERATIONS  
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Seminoe Reservoir Operations		Initial Content 813.3 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	19.1
Total Inflow	cfs	485.	472.	397.	363.	434.	888.	1889.	3932.	5356.	1535.	566.	321.
Turbine Release	kaf	32.7	31.5	32.6	32.6	29.4	61.5	154.8	160.5	155.3	160.5	49.2	32.7
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	29.4	61.5	154.8	160.5	155.3	160.5	49.2	32.7
Total Release	cfs	532.	529.	530.	530.	529.	1000.	2601.	2610.	2610.	2610.	800.	550.
Evaporation	kaf	4.7	2.5	1.4	1.3	1.3	2.7	5.1	5.1	9.2	10.5	8.7	6.2
End-month content	kaf	806.4	803.0	794.1	783.0	777.0	768.2	721.0*	793.8*	949.1*	873.1*	850.7#	831.6*
End-month elevation	ft	6345.6	6345.4	6344.9	6344.2	6343.9	6343.3	6340.4	6344.9	6353.6	6349.5	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	29.4	61.5	154.8	160.5	155.3	160.5	49.2	32.7
Total Inflow	cfs	532.	529.	530.	530.	529.	1000.	2601.	2610.	2610.	2610.	800.	550.
Turbine Release	kaf	32.6	31.5	32.6	32.6	29.4	61.5	154.8	160.5	155.3	160.5	49.2	32.7
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
Total Release	kaf	32.6	31.5	32.6	32.6	29.4	61.5	154.8	160.5	155.3	160.5	49.2	32.7
Total Release	cfs	530.	529.	530.	530.	529.	1000.	2601.	2610.	2610.	2610.	800.	550.
Pathfinder Reservoir Operations		Initial Content 792.8 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	3.2	3.6	3.5	3.7	3.8	4.9	12.9	18.7	16.4	5.0	2.2	1.3
Kortes-Path Gain	kaf	1.0	-0.1	0.0	1.0	1.9	5.0	6.8	8.3	3.2	4.1	6.5	3.6
Inflow from Kortes	kaf	32.6	31.5	32.6	32.6	29.4	61.5	154.8	160.5	155.3	160.5	49.2	32.7
Total Inflow	kaf	36.8	35.0	36.1	37.3	35.1	71.4	174.5	187.5	174.9	169.6	57.9	37.6
Total Inflow	cfs	598.	588.	587.	607.	632.	1161.	2933.	3049.	2939.	2758.	942.	632.
Turbine Release	kaf	2.3	25.6	26.3	26.3	23.8	44.9	78.1	111.0	163.6	160.1	154.9	50.7
Jetflow Release	kaf	4.6	4.5	4.6	4.6	4.2	4.6	4.5	4.6	21.4	4.6	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	6.9	30.1	30.9	30.9	28.0	49.5	82.6	115.6	185.0	164.7	159.5	55.2
Total Release	cfs	112.	506.	503.	503.	504.	805.	1388.	1880.	3109.	2679.	2594.	928.
Evaporation	kaf	5.3	3.0	1.7	1.6	1.7	3.5	6.6	8.5	12.7	14.0	11.9	8.7
End-month content	kaf	817.4	819.3	822.8	827.6	833.0	851.4	936.7	1000.1	977.3	968.2	854.7	828.4
End-month elevation	ft	5840.4	5840.5	5840.7	5840.9	5841.2	5842.2	5846.4	5849.4	5848.3	5847.9	5842.3	5841.0
Alcova Reservoir Operations		Initial Content 180.3 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	6.9	30.1	30.9	30.9	28.0	49.5	82.6	115.6	185.0	164.7	159.5	55.2
Total Inflow	cfs	112.	506.	503.	503.	504.	805.	1388.	1880.	3109.	2679.	2594.	928.
Turbine Release	kaf	30.6	29.8	30.7	30.7	27.8	49.1	58.3	104.6	169.6	146.1	142.1	44.1
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	10.0	14.0	17.0	16.0	10.0
Total Release	kaf	30.6	29.8	30.7	30.7	27.8	49.1	58.3	114.6	183.6	163.1	158.1	54.1
Total Release	cfs	498.	501.	499.	499.	501.	799.	980.	1864.	3086.	2653.	2571.	909.
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

**Table 15 (Continued) Most Probable Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 28-Dec-2017 15: 3

Based on Most Probable April - July Inflow: Seminole 767 kaf, Sweetwater 53 kaf, Glendo 136 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

Gray Reef Reservoir Operations			Initial Content				1.2 Kaf		Operating Limits: Max			1.1 Kaf, 5327.42 Ft.		
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Total Inflow	kaf	30.6	29.8	30.7	30.7	27.8	49.1	58.3	104.6	169.6	146.1	142.1	44.1	
Total Inflow	cfs	498.	501.	499.	499.	501.	799.	980.	1701.	2850.	2376.	2311.	741.	
Total Release	kaf	30.7	29.8	30.7	30.7	27.8	49.1	58.3	104.6	169.5	146.0	142.0	44.0	
Total Release	cfs	499.	501.	499.	499.	501.	799.	980.	1701.	2849.	2374.	2309.	739.	
Glendo Reservoir Operations			Initial Content				112.0 Kaf		Operating Limits: Max			789.4 Kaf, 4654.45 Ft.		
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Alcova-Glendo Gain	kaf	10.5	10.3	6.9	9.0	15.6	17.9	46.1	76.3	15.3	-1.4	-2.9	7.2	
Infl from Gray Reef	kaf	30.7	29.8	30.7	30.7	27.8	49.1	58.3	104.6	169.5	146.0	142.0	44.0	
Total Inflow	kaf	41.2	40.1	37.6	39.7	43.4	67.0	104.4	180.9	184.8	144.6	139.1	51.2	
Total Inflow	cfs	670.	674.	612.	646.	781.	1090.	1754.	2942.	3106.	2352.	2262.	860.	
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	6.0	154.5	164.4	229.3	221.4	93.1	
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	
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	88.7	64.4	0.0	
Total Release	kaf	1.5	1.5	1.5	1.5	1.5	1.5	7.5	156.0	165.9	319.5	287.3	94.6	
Total Release	cfs	24.	25.	24.	24.	27.	24.	126.	2537.	2788.	5196.	4672.	1590.	
Evaporation	kaf	1.1	0.7	0.7	0.7	0.8	1.7	3.2	4.9	6.9	6.7	4.3	2.2	
End-month content	kaf	150.6	188.5	223.9	261.4	302.5	366.3*	460.0*	480.0*	492.0*	310.0*	155.6*	110.0*	
End-month elevation	ft	4594.7	4601.1	4606.3	4611.2	4616.3	4623.3	4632.3	4634.0	4635.0	4617.1	4595.6	4586.4	
Guernsey Reservoir Operations			Initial Content				9.1 Kaf		Operating Limits: Max			45.6 Kaf, 4419.99 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	5.2	
Inflow from Glendo	kaf	1.5	1.5	1.5	1.5	1.5	1.5	7.5	156.0	165.9	319.5	287.3	94.6	
Total Inflow	kaf	4.9	3.6	3.3	3.0	2.6	2.1	13.2	164.5	168.6	321.8	287.6	99.8	
Total Inflow	cfs	80.	60.	54.	49.	47.	34.	222.	2675.	2833.	5234.	4677.	1677.	
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.6	53.6	51.8	53.6	53.6	55.8	
Seepage	kaf	0.3	0.2	0.3	0.4	0.3	0.3	0.4	1.2	3.0	3.1	2.5	0.3	
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	109.0	112.8	264.0	230.6	69.2	
Total Release	kaf	0.3	0.2	0.3	0.4	0.3	0.3	10.0	163.8	167.6	320.7	286.7	125.3	
Total Release	cfs	5.	3.	5.	7.	5.	5.	168.	2664.	2817.	5216.	4663.	2106.	
Evaporation	kaf	0.4	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	13.3	16.5	19.3	21.7	23.8	25.3	28.0*	28.0*	28.0*	28.0*	28.0*	2.0*	
End-month elevation	ft	4403.1	4405.3	4407.1	4408.5	4409.7	4410.5	4411.9	4411.9	4411.9	4411.9	4411.9	4388.0	
Physical EOM Cont	kaf	1949.5	1989.1	2021.9	2055.5	2098.1	2173.0	2331.0	2487.2	2631.7	2364.6	2074.3	1957.3	

**Table 15 (Continued) Most Probable Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 28-Dec-2017 15: 3

Based on Most Probable April - July Inflow: Seminoe 767 kaf, Sweetwater 53 kaf, Glendo 136 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

OWNERSHIP OPERATIONS

North Platte Pathfinder		Initial Ownership 592.3 Kaf, Accrued this water year: 0.0 Kaf											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Net Accrual	kaf	30.2	29.5	26.5	25.6	28.4	61.5	126.2	149.8	0.0	0.0	0.0	0.0
Evaporation	kaf	3.8	2.1	1.4	1.4	1.4	3.0	5.9	8.0	13.5	13.7	11.8	7.0
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.6	240.8	84.9
End-month Ownership	kaf	622.5	652.0	678.5	704.1	732.5	794.0	920.2	1070.0	1056.5	1021.2	768.6	676.7
North Platte Guernsey		Initial Ownership 8.7 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	8.4	10.1	16.3	2.2	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.1	0.0	0.3	0.4	0.4	0.5	0.3	0.4	0.5	0.6	0.0	0.0
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.8	0.0	0.0
End-month Ownership	kaf	8.6	8.6	17.0	27.1	43.4	45.6	45.3	44.9	44.4	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	13.6	12.2	0.0	0.0	0.0	0.0	20.2	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	0.2	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	35.3	0.0	0.0	0.0	0.0
End-month Ownership	kaf	13.6	25.8	25.7	25.6	25.5	25.4	35.6	0.0	0.0	0.0	0.0	0.0
Kendrick		Initial Ownership1144.3 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	47.7	40.8	0.0	0.0	0.0
Evaporation	kaf	7.3	3.9	2.4	2.2	2.3	4.6	8.4	9.6	14.6	15.5	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	17.0	16.0	10.0
End-month Ownership	kaf	1137.0	1133.1	1130.7	1128.5	1126.2	1121.6	1113.2	1160.9	1201.7	1169.2	1139.7	1119.4
Glendo Unit		Initial Ownership 152.6 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	15.8	3.3	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	0.9	0.6	0.3	0.3	0.3	0.6	1.2	1.5	2.1	2.1	1.8	1.3
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	5.0	4.0
End-month Ownership	kaf	151.7	151.1	150.8	150.5	150.2	165.4	167.5	166.0	163.9	155.8	149.0	143.7
Re-regulation		Initial Ownership 0.0 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	0.0	28.1	0.0	119.3	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	1.9	0.0	0.0
Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	144.9	0.0	0.0
End-month total	kaf	0.0	0.0	0.0	0.0	0.0	0.0	28.1	27.9	146.8	0.0	0.0	0.0

**Table 15 (Continued) Most Probable Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 28-Dec-2017 15: 3

Based on Most Probable April - July Inflow: Seminoe 767 kaf, Sweetwater 53 kaf, Glendo 136 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

City of Cheyenne		Initial Ownership 5.6 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	0.1	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	6.3	8.8	9.5	10.0	10.6	11.3	11.5	8.0	9.0	9.5	10.1	10.7
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 7.9 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	0.0	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	0.0	0.0	0.4	1.9	0.0
Ownership	kaf	7.8	7.7	7.7	7.7	7.7	7.7	7.6	7.5	7.4	6.9	4.9	4.8
IRRIGATION DELIVERY													
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	10.0	14.0	17.0	16.0	10.0
Delivered	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	14.0	17.0	16.0	10.0
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	128.5	165.6	314.7	281.7	121.3
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	35.3	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	163.8	167.6	320.7	286.7	125.3
Seepage	kaf	0.3	0.2	0.3	0.4	0.3	0.3	0.4	1.2	3.0	3.1	2.5	0.3
Actual Release	kaf	0.3	0.2	0.3	0.4	0.3	0.3	10.0	163.8	167.6	320.7	286.7	125.3
Ownership EOM Cont	kaf	1949.5	1989.1	2021.9	2055.5	2098.1	2173.0	2331.0	2487.2	2631.7	2364.6	2074.3	1957.3

**Table 15 (Continued) Most Probable Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 28-Dec-2017 15: 3

Based on Most Probable April - July Inflow: Seminoe 767 kaf, Sweetwater 53 kaf, Glendo 136 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

POWER GENERATION

Seminoe Power Plant		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		32.7	31.5	32.6	32.6	29.4	61.5	154.8	160.5	155.3	160.5	49.2	32.7
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		33.286	32.277	33.425	33.462	30.175	33.385	32.393	33.488	31.889	32.645	32.947	32.114
Actual generation gwh		5.690	5.481	5.672	5.655	5.075	10.578	26.489	27.606	27.437	28.569	8.659	5.745
Percent max generation		17.	17.	17.	17.	17.	32.	82.	82.	86.	88.	26.	18.
Average kwh/af		174.	174.	174.	173.	173.	172.	171.	172.	177.	178.	176.	176.
Kortes Power Plant		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		32.6	31.5	32.6	32.6	29.4	61.5	154.8	160.5	155.3	160.5	49.2	32.7
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	24.940	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	5.057	10.578	26.626	27.606	26.712	27.606	8.462	5.624
Percent max generation		20.	20.	20.	20.	20.	38.	100.	100.	100.	100.	31.	21.
Average kwh/af		172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.
Fremont Canyon		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		2.3	25.6	26.3	26.3	23.8	44.9	78.1	111.0	163.6	160.1	154.9	50.7
Bypass kaf		4.6	4.5	4.6	4.6	4.2	4.6	4.5	4.6	21.4	4.6	4.6	4.5
Maximum generation gwh		47.183	45.657	47.194	47.197	42.623	47.209	45.710	47.300	45.775	47.303	47.259	45.673
Actual generation gwh		0.642	7.144	7.340	7.341	6.643	12.535	21.821	31.048	45.775	44.785	43.290	14.154
Percent max generation		1.	16.	16.	16.	16.	27.	48.	66.	100.	95.	92.	31.
Average kwh/af		279.	279.	279.	279.	279.	279.	279.	280.	280.	280.	279.	279.
Alcova Power Plant		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		30.6	29.8	30.7	30.7	27.8	49.1	58.3	104.6	169.6	146.1	142.1	44.1
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		27.173	26.588	27.472	27.472	24.820	27.472	26.275	27.552	26.656	27.552	27.552	26.656
Actual generation gwh		4.225	4.053	4.175	4.175	3.781	6.678	8.045	14.644	23.744	20.454	19.894	6.174
Percent max generation		16.	15.	15.	15.	15.	24.	31.	53.	89.	74.	72.	23.
Average kwh/af		138.	136.	136.	136.	136.	136.	138.	140.	140.	140.	140.	140.
Glendo Power Plant		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		0.0	0.0	0.0	0.0	0.0	0.0	6.0	154.5	164.4	229.3	221.4	93.1
Bypass kaf		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	90.2	65.9	1.5
Maximum generation gwh		14.383	16.031	18.750	20.070	19.201	22.853	24.262	26.737	26.342	24.732	19.770	13.998
Actual generation gwh		0.000	0.000	0.000	0.000	0.000	0.000	0.653	17.489	18.813	24.732	19.770	6.407
Percent max generation		0.	0.	0.	0.	0.	0.	3.	65.	71.	100.	100.	46.
Average kwh/af		0.	0.	0.	0.	0.	0.	109.	113.	114.	108.	89.	69.
Guernsey Power Plant		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		0.0	0.0	0.0	0.0	0.0	0.0	9.6	53.6	51.8	53.6	53.6	55.8
Bypass kaf		0.3	0.2	0.3	0.4	0.3	0.3	0.4	110.2	115.8	267.1	233.1	69.5
Maximum generation gwh		3.381	3.398	3.610	3.680	3.342	3.718	3.639	3.795	3.667	3.795	3.795	3.404
Actual generation gwh		0.000	0.000	0.000	0.000	0.000	0.000	0.672	3.795	3.667	3.795	3.795	3.404
Percent max generation		0.	0.	0.	0.	0.	0.	18.	100.	100.	100.	100.	100.
Average kwh/af		0.	0.	0.	0.	0.	0.	70.	71.	71.	71.	71.	61.

# Table 16 Reasonable Minimum Operating Plan for Water Year 2018

NPRAOP V1.1K 21-Mar-2003 Run: 28-Dec-2017 14:11

Based on Reasonable minimum April - July Inflow: Seminoe 337 kaf, Sweetwater 21 kaf, Glendo 22 kaf

## NORTH PLATTE RIVER OPERATING PLAN Year Beginning Oct 2017

### HYDROLOGY OPERATIONS

Seminoe Reservoir Operations		Initial Content 813.3 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	23.1	22.3	21.0	18.3	20.8	44.1	71.9	114.6	118.3	32.5	19.3	13.7
Total Inflow	cfs	376.	375.	342.	298.	375.	717.	1208.	1864.	1988.	529.	314.	230.
Turbine Release	kaf	32.7	31.5	32.6	32.6	29.4	49.2	47.6	98.4	146.9	129.1	61.5	31.5
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	29.4	49.2	47.6	98.4	146.9	129.1	61.5	31.5
Total Release	cfs	532.	529.	530.	530.	529.	800.	800.	1600.	2469.	2100.	1000.	529.
Evaporation	kaf	4.7	2.5	1.3	1.3	1.3	2.8	5.2	5.2	8.2	8.4	6.7	4.6
End-month content	kaf	799.7	790.5	778.3	763.2	753.9	746.8	766.2	773.8	738.1*	633.7*	585.5	563.8
End-month elevation	ft	6345.3	6344.7	6344.0	6343.0	6342.5	6342.0	6343.2	6343.7	6341.5	6334.4	6330.8	6329.1
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	29.4	49.2	47.6	98.4	146.9	129.1	61.5	31.5
Total Inflow	cfs	532.	529.	530.	530.	529.	800.	800.	1600.	2469.	2100.	1000.	529.
Turbine Release	kaf	32.6	31.5	32.6	32.6	29.4	49.2	47.6	98.4	146.9	129.1	61.5	31.5
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	32.6	31.5	32.6	32.6	29.4	49.2	47.6	98.4	146.9	129.1	61.5	31.5
Total Release	cfs	530.	529.	530.	530.	529.	800.	800.	1600.	2469.	2100.	1000.	529.
Pathfinder Reservoir Operations		Initial Content 792.8 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	-0.7	-1.4	-1.6	-0.8	0.2	3.2	2.2	2.3	-1.6	-2.0	-0.2	-0.8
Inflow from Kortes	kaf	32.6	31.5	32.6	32.6	29.4	49.2	47.6	98.4	146.9	129.1	61.5	31.5
Total Inflow	kaf	33.8	32.4	33.1	33.7	31.5	56.1	58.7	106.7	150.2	128.6	62.2	31.4
Total Inflow	cfs	550.	544.	538.	548.	567.	912.	986.	1735.	2524.	2091.	1012.	528.
Turbine Release	kaf	2.3	25.6	26.3	26.3	23.8	45.0	67.4	169.1	163.6	169.1	169.1	55.7
Jetflow Release	kaf	4.6	4.5	4.6	4.6	4.2	4.6	4.5	20.9	38.4	46.2	39.1	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	6.9	30.1	30.9	30.9	28.0	49.6	71.9	190.0	202.0	215.3	208.2	60.2
Total Release	cfs	112.	506.	503.	503.	504.	807.	1208.	3090.	3395.	3502.	3386.	1012.
Evaporation	kaf	5.3	3.0	1.7	1.6	1.7	3.3	6.1	7.1	9.7	9.6	7.0	4.3
End-month content	kaf	814.4	813.7	814.2	815.4	817.2	820.4	801.1	710.7	649.2	552.9	399.9	366.8
End-month elevation	ft	5840.2	5840.2	5840.2	5840.3	5840.4	5840.5	5839.5	5834.5	5830.7	5824.1	5811.3	5807.9
Alcova Reservoir Operations		Initial Content 180.3 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	6.9	30.1	30.9	30.9	28.0	49.6	71.9	190.0	202.0	215.3	208.2	60.2
Total Inflow	cfs	112.	506.	503.	503.	504.	807.	1208.	3090.	3395.	3502.	3386.	1012.
Turbine Release	kaf	30.6	29.8	30.7	30.7	27.8	49.2	47.6	179.0	186.6	196.7	190.8	49.1
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	10.0	14.0	17.0	16.0	10.0
Total Release	kaf	30.6	29.8	30.7	30.7	27.8	49.2	47.6	189.0	200.6	213.7	206.8	59.1
Total Release	cfs	498.	501.	499.	499.	501.	800.	800.	3074.	3371.	3475.	3363.	993.
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

**Table 16 (Continued) Reasonable Minimum Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 28-Dec-2017 14:11

Based on Reasonable minimum April - July Inflow: Seminole 337 kaf, Sweetwater 21 kaf, Glendo 22 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

Gray Reef Reservoir Operations		Initial Content				1.2 Kaf		Operating Limits: Max			1.1 Kaf, 5327.42 Ft.				
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep		
Total Inflow	kaf	30.6	29.8	30.7	30.7	27.8	49.2	47.6	179.0	186.6	196.7	190.8	49.1		
Total Inflow	cfs	498.	501.	499.	499.	501.	800.	800.	2911.	3136.	3199.	3103.	825.		
Total Release	kaf	30.7	29.8	30.7	30.7	27.8	49.2	47.6	179.0	186.5	196.6	190.7	49.0		
Total Release	cfs	499.	501.	499.	499.	501.	800.	800.	2911.	3134.	3197.	3101.	823.		
Glendo Reservoir Operations				Initial Content		112.0 Kaf		Operating Limits: Max			789.4 Kaf, 4654.45 Ft.				
				Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Alcova-Glendo Gain	kaf	9.2	7.7	5.4	6.0	8.1	11.7	10.3	16.1	-1.0	-3.5	-1.0	8.5		
Infl from Gray Reef	kaf	30.7	29.8	30.7	30.7	27.8	49.2	47.6	179.0	186.5	196.6	190.7	49.0		
Total Inflow	kaf	39.9	37.5	36.1	36.7	35.9	60.9	57.9	195.1	185.5	193.1	189.7	57.5		
Total Inflow	cfs	649.	630.	587.	597.	646.	990.	973.	3173.	3117.	3140.	3085.	966.		
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	13.7	164.8	170.4	223.7	221.4	128.7		
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		
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	102.4	60.9	0.0		
Total Release	kaf	1.5	1.5	1.5	1.5	1.5	1.5	15.2	166.3	171.9	327.6	283.8	130.2		
Total Release	cfs	24.	25.	24.	24.	27.	24.	255.	2705.	2889.	5328.	4616.	2188.		
Evaporation	kaf	1.1	0.7	0.7	0.7	0.8	1.6	2.9	4.3	6.2	6.1	4.2	2.2		
End-month content	kaf	149.3	184.6	218.5	253.0	286.6	344.4*	384.2*	408.7*	416.1*	275.1*	174.9*	100.0*		
End-month elevation	ft	4594.5	4600.5	4605.5	4610.2	4614.4	4621.0	4625.1	4627.5	4628.2	4613.0	4598.9	4584.1		
Guernsey Reservoir Operations				Initial Content		9.1 Kaf		Operating Limits: Max			45.6 Kaf, 4419.99 Ft.				
				Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Glendo-Guerns Gain	kaf	2.2	1.5	1.2	1.0	1.2	1.2	0.0	2.6	-1.3	-3.1	-1.2	1.8		
Inflow from Glendo	kaf	1.5	1.5	1.5	1.5	1.5	1.5	15.2	166.3	171.9	327.6	283.8	130.2		
Total Inflow	kaf	3.7	3.0	2.7	2.5	2.7	2.7	15.2	168.9	170.6	324.5	282.6	132.0		
Total Inflow	cfs	60.	50.	44.	41.	49.	44.	255.	2747.	2867.	5277.	4596.	2218.		
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	9.6	53.6	51.8	53.6	53.6	55.8		
Seepage	kaf	0.3	0.2	0.3	0.4	0.3	0.3	0.4	1.2	3.0	3.1	2.5	0.3		
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	113.4	114.8	266.7	225.6	101.4		
Total Release	kaf	0.3	0.2	0.3	0.4	0.3	0.3	10.0	168.2	169.6	323.4	281.7	157.5		
Total Release	cfs	5.	3.	5.	7.	5.	5.	168.	2736.	2850.	5260.	4581.	2647.		
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	12.3#	14.9	17.1	19.0	21.2	23.3	28.0*	28.0*	28.0*	28.0*	28.0*	2.0*		
End-month elevation	ft	4402.3	4404.2	4405.7	4406.9	4408.3	4409.4	4411.9	4411.9	4411.9	4411.9	4411.9	4388.0		
Physical EOM Cont	kaf	1937.5	1965.5	1989.9	2012.4	2040.7	2096.7	2164.8	2106.5	2016.7	1675.0	1373.6	1217.9		

**Table 16 (Continued) Reasonable Minimum Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 28-Dec-2017 14:11

Based on Reasonable minimum April - July Inflow: Seminole 337 kaf, Sweetwater 21 kaf, Glendo 22 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

OWNERSHIP OPERATIONS

North Platte Pathfinder												
Initial Ownership 592.3 Kaf, Accrued this water year: 0.0 Kaf												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Net Accrual kaf	20.6	21.1	20.2	18.1	21.5	48.1	77.5	0.0	0.0	0.0	0.0	0.0
Evaporation kaf	3.7	2.1	1.3	1.3	1.4	2.9	5.5	6.9	10.3	10.5	5.9	2.0
Deliv fm Ownership kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3	292.0	263.9	132.6
End-month Ownership kaf	612.9	634.0	654.2	672.3	693.8	741.9	819.4	812.5	788.9	486.4	216.6	82.0
North Platte Guernsey												
Initial Ownership 8.7 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	6.3	6.6	9.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage kaf	0.1	0.0	0.3	0.4	0.3	0.4	0.3	0.4	0.5	0.0	0.0	0.0
Deliv fm Ownership kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	35.0	0.0	0.0	0.0
End-month Ownership kaf	8.6	8.6	14.9	21.5	30.5	43.0	42.7	35.5	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	11.1	9.0	0.0	0.0	0.0	0.0	10.2	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	0.1	0.1	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	19.8	0.0	0.0	0.0	0.0
End-month Ownership kaf	11.1	20.1	20.0	19.9	19.8	19.7	19.9	0.0	0.0	0.0	0.0	0.0
Kendrick												
Initial Ownership 1144.3 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	0.0	0.0	0.0	0.0
Evaporation kaf	7.2	3.9	2.4	2.3	2.4	4.6	8.3	9.4	13.8	14.2	12.5	9.4
Deliv fm Ownership kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	14.0	17.0	16.0	10.0
End-month Ownership kaf	1137.1	1133.2	1130.8	1128.5	1126.1	1121.5	1113.2	1093.8	1066.0	1034.8	1006.3	986.9
Glendo Unit												
Initial Ownership 152.6 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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation kaf	0.9	0.6	0.3	0.3	0.3	0.6	1.1	1.3	1.8	1.9	1.7	1.2
Deliv fm Ownership kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	6.0	0.0	1.0
End-month Ownership kaf	151.7	151.1	150.8	150.5	150.2	149.6	148.5	147.2	143.4	135.5	133.8	131.6
Re-regulation												
Initial Ownership 0.0 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	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage 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
End-month total 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



**Table 16 (Continued) Reasonable Minimum Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 28-Dec-2017 14:11

Based on Reasonable minimum April - July Inflow: Seminole 337 kaf, Sweetwater 21 kaf, Glendo 22 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

City of Cheyenne		Initial Ownership 5.6 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	0.1	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	6.3	8.8	9.5	10.0	10.6	11.3	11.5	8.0	9.0	9.5	10.1	10.7
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 7.9 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	0.0	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	0.0	0.0	0.4	1.9	0.0
Ownership	kaf	7.8	7.7	7.7	7.7	7.7	7.7	7.6	7.5	7.4	6.8	4.8	4.7
IRRIGATION DELIVERY													
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	10.0	14.0	17.0	16.0	10.0
Delivered	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	14.0	17.0	16.0	10.0
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	148.4	167.6	317.4	281.7	156.5
Glendo Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	6.0	0.0	1.0
Inland Lakes Req	kaf	0.0	0.0	0.0	0.0	0.0	0.0	10.0	19.8	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	168.2	169.6	323.4	281.7	157.5
Seepage	kaf	0.3	0.2	0.3	0.4	0.3	0.3	0.4	1.2	3.0	3.1	2.5	0.3
Actual Release	kaf	0.3	0.2	0.3	0.4	0.3	0.3	10.0	168.2	169.6	323.4	281.7	157.5
Ownership EOM Cont	kaf	1937.5	1965.5	1989.9	2012.4	2040.7	2096.7	2164.8	2106.5	2016.7	1675.0	1373.6	1217.9

**Table 16 (Continued) Reasonable Minimum Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 28-Dec-2017 14:11

Based on Reasonable minimum April - July Inflow: Seminoe 337 kaf, Sweetwater 21 kaf, Glendo 22 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

POWER GENERATION

Seminoe Power Plant		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		32.7	31.5	32.6	32.6	29.4	49.2	47.6	98.4	146.9	129.1	61.5	31.5
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		33.321	32.399	33.435	33.420	30.238	33.481	32.405	33.420	32.405	33.214	31.800	30.136
Actual generation gwh		5.690	5.481	5.642	5.607	5.057	8.447	8.187	16.925	25.267	21.689	10.065	5.076
Percent max generation		17.	17.	17.	17.	17.	25.	25.	51.	78.	65.	32.	17.
Average kwh/af		174.	174.	173.	172.	172.	172.	172.	172.	172.	168.	164.	161.
Kortes Power Plant		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		32.6	31.5	32.6	32.6	29.4	49.2	47.6	98.4	146.9	129.1	61.5	31.5
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	24.940	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	5.057	8.462	8.187	16.925	25.267	22.205	10.578	5.418
Percent max generation		20.	20.	20.	20.	20.	31.	31.	61.	95.	80.	38.	20.
Average kwh/af		172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.
Fremont Canyon		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		2.3	25.6	26.3	26.3	23.8	45.0	67.4	169.1	163.6	169.1	169.1	55.7
Bypass kaf		4.6	4.5	4.6	4.6	4.2	4.6	4.5	20.9	38.4	46.2	39.1	4.5
Maximum generation gwh		47.181	45.654	47.189	47.190	42.614	47.192	45.652	46.781	44.597	45.247	43.771	41.173
Actual generation gwh		0.642	7.144	7.339	7.339	6.642	12.559	18.808	46.781	44.597	45.247	43.771	14.018
Percent max generation		1.	16.	16.	16.	16.	27.	41.	100.	100.	100.	100.	34.
Average kwh/af		279.	279.	279.	279.	279.	279.	279.	277.	273.	268.	259.	252.
Alcova Power Plant		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		30.6	29.8	30.7	30.7	27.8	49.2	47.6	179.0	186.6	196.7	190.8	49.1
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		27.173	26.588	27.472	27.472	24.820	27.472	26.275	27.552	26.656	27.552	27.552	26.656
Actual generation gwh		4.225	4.053	4.175	4.175	3.781	6.691	6.569	25.060	26.124	27.538	26.712	6.874
Percent max generation		16.	15.	15.	15.	15.	24.	25.	91.	98.	100.	97.	26.
Average kwh/af		138.	136.	136.	136.	136.	136.	138.	140.	140.	140.	140.	140.
Glendo Power Plant		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		0.0	0.0	0.0	0.0	0.0	0.0	13.7	164.8	170.4	223.7	221.4	128.7
Bypass kaf		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	103.9	62.4	1.5
Maximum generation gwh		14.347	15.890	18.467	19.860	18.867	22.288	22.927	24.598	24.250	23.170	19.533	14.254
Actual generation gwh		0.000	0.000	0.000	0.000	0.000	0.000	1.439	17.717	18.530	23.170	19.533	8.988
Percent max generation		0.	0.	0.	0.	0.	0.	6.	72.	76.	100.	100.	63.
Average kwh/af		0.	0.	0.	0.	0.	0.	105.	108.	109.	104.	88.	70.
Guernsey Power Plant		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Turbine Release kaf		0.0	0.0	0.0	0.0	0.0	0.0	9.6	53.6	51.8	53.6	53.6	55.8
Bypass kaf		0.3	0.2	0.3	0.4	0.3	0.3	0.4	114.6	117.8	269.8	228.1	101.7
Maximum generation gwh		3.362	3.355	3.553	3.619	3.323	3.698	3.622	3.795	3.667	3.795	3.795	3.404
Actual generation gwh		0.000	0.000	0.000	0.000	0.000	0.000	0.666	3.795	3.667	3.795	3.795	3.404
Percent max generation		0.	0.	0.	0.	0.	0.	18.	100.	100.	100.	100.	100.
Average kwh/af		0.	0.	0.	0.	0.	0.	69.	71.	71.	71.	71.	61.

# Table 17 Reasonable Maximum Operating Plan for Water Year 2018

NPRAOP V1.1K 21-Mar-2003 Run: 29-Dec-2017 10:58

Based on Reasonable maximum April - July Inflow: Seminoe 1353 kaf, Sweetwater 125 kaf, Glendo 329 kaf

## NORTH PLATTE RIVER OPERATING PLAN Year Beginning Oct 2017

### HYDROLOGY OPERATIONS

Seminoe Reservoir Operations		Initial Content 813.3 Kaf						Operating Limits: Max 1017.2 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.	535.	1018.	2652.	6341.	9794.	3620.	1010.	623.
Turbine Release	kaf	32.6	31.5	32.6	32.6	29.4	123.0	191.9	196.7	185.0	181.0	88.3	81.3
Jetflow Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	46.2	171.8	112.5	45.6	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	32.6	31.5	32.6	32.6	29.4	123.0	238.1	368.5	297.5	226.6	88.3	81.3
Total Release	cfs	530.	529.	530.	530.	529.	2000.	4001.	5993.	5000.	3685.	1436.	1366.
Evaporation	kaf	4.7	2.6	1.4	1.3	1.4	2.8	4.9	4.6	8.7	10.8	9.1	6.4
End-month content	kaf	814.2	817.4	813.1	806.8	806.3	743.9*	659.0*	672.4*	950.1#	935.9*	901.3*	851.4*
End-month elevation	ft	6346.1	6346.3	6346.0	6345.7	6345.6	6341.8	6336.2	6337.1	6353.6	6352.9	6351.0	6348.3
Kortes Reservoir Operations		Initial Content 4.7 Kaf						Operating Limits: Max 4.7 Kaf, 6141.53 Ft. Min 1.7 Kaf, 6092.73 Ft.					
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Total Inflow	kaf	32.6	31.5	32.6	32.6	29.4	123.0	238.1	368.5	297.5	226.6	88.3	81.3
Total Inflow	cfs	530.	529.	530.	530.	529.	2000.	4001.	5993.	5000.	3685.	1436.	1366.
Turbine Release	kaf	32.6	31.5	32.6	32.6	29.4	123.0	163.6	169.1	163.6	169.1	88.3	81.3
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	74.5	199.4	133.9	57.5	0.0	0.0
Total Release	kaf	32.6	31.5	32.6	32.6	29.4	123.0	238.1	368.5	297.5	226.6	88.3	81.3
Total Release	cfs	530.	529.	530.	530.	529.	2000.	4001.	5993.	5000.	3685.	1436.	1366.
Pathfinder Reservoir Operations		Initial Content 792.8 Kaf						Operating Limits: Max 1070.2 Kaf, 5852.49 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	2.8	2.5	2.8	6.5	18.7	47.0	45.3	13.6	4.8	3.1
Kortes-Path Gain	kaf	4.4	2.3	2.4	4.7	6.3	8.6	11.2	17.4	11.2	8.6	6.8	7.4
Inflow from Kortes	kaf	32.6	31.5	32.6	32.6	29.4	123.0	238.1	368.5	297.5	226.6	88.3	81.3
Total Inflow	kaf	40.4	37.4	37.8	39.8	38.5	138.1	268.0	432.9	354.0	248.8	99.9	91.8
Total Inflow	cfs	657.	629.	615.	647.	693.	2246.	4504.	7040.	5949.	4046.	1625.	1543.
Turbine Release	kaf	3.1	25.6	26.3	26.3	23.8	169.1	163.6	169.1	163.6	169.1	169.1	85.7
Jetflow Release	kaf	4.6	4.5	4.6	4.6	4.2	15.2	44.0	37.5	175.2	133.1	62.3	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	7.7	30.1	30.9	30.9	28.0	184.3	207.6	206.6	338.8	302.2	231.4	90.2
Total Release	cfs	125.	506.	503.	503.	504.	2997.	3489.	3360.	5694.	4915.	3763.	1516.
Evaporation	kaf	5.3	3.0	1.7	1.6	1.7	3.3	6.2	8.4	13.4	14.6	12.1	8.8
End-month content	kaf	820.2	824.5	829.7	837.0	845.8	796.3	850.5	1068.4	1070.2	1002.2	858.6	851.4
End-month elevation	ft	5840.5	5840.8	5841.0	5841.4	5841.9	5839.3	5842.1	5852.4	5852.5	5849.5	5842.5	5842.2
Alcova Reservoir Operations		Initial Content 180.3 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	7.7	30.1	30.9	30.9	28.0	184.3	207.6	206.6	338.8	302.2	231.4	90.2
Total Inflow	cfs	125.	506.	503.	503.	504.	2997.	3489.	3360.	5694.	4915.	3763.	1516.
Turbine Release	kaf	31.4	29.8	30.7	30.7	27.8	183.9	183.3	195.6	190.4	196.8	196.8	79.1
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	133.0	86.8	17.2	0.0
Casper Canal Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	14.0	17.0	16.0	10.0
Total Release	kaf	31.4	29.8	30.7	30.7	27.8	183.9	183.3	205.6	337.4	300.6	230.0	89.1
Total Release	cfs	511.	501.	499.	499.	501.	2991.	3080.	3344.	5670.	4889.	3741.	1497.
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

**Table 17 (Continued) Reasonable Maximum Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 29-Dec-2017 10:58

Based on Reasonable maximum April - July Inflow: Seminoe 1353 kaf, Sweetwater 125 kaf, Glendo 329 kaf

NORTH PLATTE RIVER OPERATING PLAN  
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Gray Reef Reservoir Operations				Initial Content		1.2 Kaf		Operating Limits: Max			1.8 Kaf, 5332.00 Ft.						
				Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	0.0 Kaf, 5306.00 Ft.	Jul	Aug	Sep
Total Inflow	kaf	31.4	29.8	30.7	30.7	27.8	183.9	183.3	195.6	323.4	283.6	214.0	79.1				
Total Inflow	cfs	511.	501.	499.	499.	501.	2991.	3080.	3181.	5435.	4612.	3480.	1329.				
Total Release	kaf	30.7	29.8	30.7	30.7	27.8	183.9	183.2	195.5	323.3	283.5	213.9	79.0				
Total Release	cfs	499.	501.	499.	499.	501.	2991.	3079.	3180.	5433.	4611.	3479.	1328.				
Glendo Reservoir Operations				Initial Content		112.0 Kaf		Operating Limits: Max			492.0 Kaf, 4635.00 Ft.						
				Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	63.2 Kaf, 4573.94 Ft.	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	27.8	183.9	183.2	195.5	323.3	283.5	213.9	79.0				
Total Inflow	kaf	47.4	44.4	37.0	44.7	41.2	203.1	245.1	384.5	391.9	292.5	222.2	93.6				
Total Inflow	cfs	771.	746.	602.	727.	742.	3303.	4119.	6253.	6586.	4757.	3614.	1573.				
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	142.9	219.2	231.9	230.2	231.9	221.4	180.3				
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				
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	18.5	41.5	141.3	181.4	154.9	0.0				
Total Release	kaf	1.5	1.5	1.5	1.5	1.5	144.4	239.2	274.9	373.0	414.8	377.8	181.8				
Total Release	cfs	24.	25.	24.	24.	27.	2348.	4020.	4471.	6268.	6746.	6144.	3055.				
Evaporation	kaf	1.1	0.8	0.8	0.7	0.8	1.7	2.9	4.6	6.9	7.0	4.8	2.5				
End-month content	kaf	156.8	198.9	233.6	276.1	315.0*	372.0*	375.0*	480.0*	492.0*	362.3*	200.0*	109.3*				
End-month elevation	ft	4595.8	4602.7	4607.6	4613.1	4617.7	4623.9	4624.2	4634.0	4635.0	4622.9	4602.8	4586.3				
Guernsey Reservoir Operations				Initial Content		9.1 Kaf		Operating Limits: Max			28.0 Kaf, 4411.92 Ft.						
				Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Min	0.0 Kaf, 4370.00 Ft.	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	4.3				
Inflow from Glendo	kaf	1.5	1.5	1.5	1.5	1.5	144.4	239.2	274.9	373.0	414.8	377.8	181.8				
Total Inflow	kaf	4.8	3.3	3.1	3.1	2.7	145.4	246.7	309.8	395.2	421.3	377.6	186.1				
Total Inflow	cfs	78.	55.	50.	50.	49.	2365.	4146.	5038.	6642.	6852.	6141.	3128.				
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	53.9	25.9	53.6	51.8	53.6	53.6	55.8				
Seepage	kaf	0.3	0.2	0.3	0.4	0.3	0.3	0.4	1.2	3.0	3.1	2.5	0.3				
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	86.7	219.8	254.2	339.3	363.4	320.5	155.5				
Total Release	kaf	0.3	0.2	0.3	0.4	0.3	140.9	246.1	309.0	394.1	420.1	376.6	211.6				
Total Release	cfs	5.	3.	5.	7.	5.	2292.	4136.	5025.	6623.	6832.	6125.	3556.				
Evaporation	kaf	0.3	0.2	0.1	0.1	0.1	0.3	0.6	0.8	1.1	1.2	1.0	0.5				
End-month content	kaf	13.3#	16.2	18.9	21.5	23.8	28.0*	28.0*	28.0*	28.0*	28.0*	28.0*	2.0*				
End-month elevation	ft	4403.1	4405.1	4406.9	4408.4	4409.7	4411.9	4411.9	4411.9	4411.9	4411.9	4411.9	4388.0				
Physical EOM Cont	kaf	1966.9	2019.4	2057.7	2103.8	2153.3	2102.6	2098.4	2434.7	2726.2	2514.3	2173.8	2000.0				

**Table 17 (Continued) Reasonable Maximum Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 29-Dec-2017 10:58

Based on Reasonable maximum April - July Inflow: Seminoe 1353 kaf, Sweetwater 125 kaf, Glendo 329 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

OWNERSHIP OPERATIONS

North Platte Pathfinder		Initial Ownership 592.3 Kaf, Accrued this water year: 0.0 Kaf											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Net Accrual	kaf	41.5	38.5	32.8	32.9	37.4	74.6	181.4	38.6	0.0	0.0	0.0	0.0
Evaporation	kaf	3.8	2.2	1.4	1.4	1.4	3.1	6.3	9.6	13.9	13.7	11.8	7.7
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	171.2	141.4
End-month Ownership	kaf	633.8	672.3	705.1	738.0	775.4	850.0	1031.4	1070.0	1056.1	1042.4	859.4	710.3
North Platte Guernsey		Initial Ownership 8.7 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	15.2	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.1	0.0	0.3	0.4	0.4	0.2	0.4	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	42.9	0.0
End-month Ownership	kaf	8.6	8.6	16.2	31.4	45.6	45.4	45.0	44.6	44.0	43.4	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	19.7	16.1	0.0	0.0	0.0	0.0	10.2	0.0	0.0	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.3	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	19.7	35.8	35.7	35.6	35.5	35.4	35.6	0.1	0.1	0.1	0.1	0.1
Kendrick		Initial Ownership 1144.3 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	87.1	0.0	0.0	0.0	0.0
Evaporation	kaf	7.3	4.0	2.4	2.1	2.3	4.4	7.2	7.4	14.7	15.4	13.3	10.2
Deliv fm Ownership	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.0	10.0
End-month Ownership	kaf	1137.0	1133.0	1130.6	1128.5	1126.2	1121.8	1114.6	1201.7	1187.0	1171.6	1142.3	1122.1
Glendo Unit		Initial Ownership 152.6 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	19.1	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation	kaf	0.9	0.5	0.3	0.3	0.3	0.6	1.2	1.6	2.2	2.1	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	3.7
End-month Ownership	kaf	151.7	151.2	150.9	150.6	150.3	168.8	167.6	166.0	163.8	161.7	154.9	149.8
Re-regulation		Initial Ownership 0.0 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	1.1	58.9	402.6	554.1	0.0	0.0	0.0
Evaporation/Seepage	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.9	0.0
Release	kaf	0.0	0.0	0.0	0.0	0.0	140.9	236.1	150.9	232.1	176.8	75.7	0.0
End-month total	kaf	0.0	0.0	0.0	0.0	0.0	-139.8	-317.0	-65.3	256.7	76.6	0.0	0.0

**Table 17 (Continued) Reasonable Maximum Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 29-Dec-2017 10:58

Based on Reasonable maximum April - July Inflow: Seminoe 1353 kaf, Sweetwater 125 kaf, Glendo 329 kaf

NORTH PLATTE RIVER OPERATING PLAN  
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City of Cheyenne		Initial Ownership 5.6 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	0.1	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	6.3	8.8	9.5	10.0	10.6	11.3	11.5	8.0	9.0	9.5	10.1	10.7
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 7.9 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	0.0	0.0	0.1	0.1	0.1	0.1	0.0
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	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.5	7.0	5.0	5.0
IRRIGATION DELIVERY													
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	10.0	14.0	17.0	16.0	10.0
Delivered	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	14.0	17.0	16.0	10.0
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	122.9	160.0	309.1	296.2	207.9
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	3.7
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	158.1	162.0	315.1	301.2	211.6
Seepage	kaf	0.3	0.2	0.3	0.4	0.3	0.3	0.4	1.2	3.0	3.1	2.5	0.3
Actual Release	kaf	0.3	0.2	0.3	0.4	0.3	140.9	246.1	309.0	394.1	420.1	376.6	211.6
Spill	kaf	0.0	0.0	0.0	0.0	0.0	140.6	236.1	150.9	232.1	105.0	75.4	0.0
Ownership EOM Cont	kaf	1966.9	2019.4	2057.7	2103.8	2153.3	2102.6	2098.4	2434.7	2726.2	2514.3	2173.8	2000.0

**Table 17 (Continued) Reasonable Maximum Operating Plan for Water Year 2018**

NPRAOP V1.1K 21-Mar-2003 Run: 29-Dec-2017 10:58

Based on Reasonable maximum April - July Inflow: Seminoe 1353 kaf, Sweetwater 125 kaf, Glendo 329 kaf

NORTH PLATTE RIVER OPERATING PLAN  
Year Beginning Oct 2017

POWER GENERATION

-----		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Seminoe Power Plant													
-----													
Turbine Release	kaf	32.6	31.5	32.6	32.6	29.4	123.0	191.9	196.7	185.0	181.0	88.3	81.3
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	46.2	171.8	112.5	45.6	0.0	0.0
Maximum generation	gwh	33.234	32.151	33.221	33.286	30.102	33.379	32.398	32.849	32.190	32.399	32.618	31.878
Actual generation	gwh	5.672	5.486	5.676	5.672	5.116	21.174	32.398	32.849	32.190	32.399	15.747	14.390
Percent max generation		17.	17.	17.	17.	17.	63.	100.	100.	100.	100.	48.	45.
Average kwh/af		174.	174.	174.	174.	174.	172.	169.	167.	174.	179.	178.	177.
Kortes Power Plant													
-----													
Turbine Release	kaf	32.6	31.5	32.6	32.6	29.4	123.0	163.6	169.1	163.6	169.1	88.3	81.3
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	74.5	199.4	133.9	57.5	0.0	0.0
Maximum generation	gwh	29.085	28.139	29.085	29.085	26.264	29.085	28.139	29.085	28.139	29.085	29.085	28.139
Actual generation	gwh	5.607	5.418	5.607	5.607	5.057	21.156	28.139	29.085	28.139	29.085	15.188	13.984
Percent max generation		19.	19.	19.	19.	19.	73.	100.	100.	100.	100.	52.	50.
Average kwh/af		172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.	172.
Fremont Canyon													
-----													
Turbine Release	kaf	3.1	25.6	26.3	26.3	23.8	169.1	163.6	169.1	163.6	169.1	169.1	85.7
Bypass	kaf	4.6	4.5	4.6	4.6	4.2	15.2	44.0	37.5	175.2	133.1	62.3	4.5
Maximum generation	gwh	47.184	45.660	47.198	47.203	42.630	47.194	45.661	47.293	45.808	47.348	47.272	45.683
Actual generation	gwh	0.865	7.145	7.341	7.341	6.644	47.194	45.661	47.293	45.808	47.348	47.272	23.930
Percent max generation		2.	16.	16.	16.	16.	100.	100.	100.	100.	100.	100.	52.
Average kwh/af		279.	279.	279.	279.	279.	279.	279.	280.	280.	280.	280.	279.
Alcova Power Plant													
-----													
Turbine Release	kaf	31.4	29.8	30.7	30.7	27.8	183.9	183.3	195.6	190.4	196.8	196.8	79.1
Bypass	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	133.0	86.8	17.2	0.0
Maximum generation	gwh	27.173	26.588	27.472	27.472	24.820	27.472	26.275	27.552	26.656	27.552	27.552	26.656
Actual generation	gwh	4.336	4.053	4.175	4.175	3.781	25.010	25.295	27.384	26.656	27.552	27.552	11.074
Percent max generation		16.	15.	15.	15.	15.	91.	96.	99.	100.	100.	100.	42.
Average kwh/af		138.	136.	136.	136.	136.	136.	138.	140.	140.	140.	140.	140.
Glendo Power Plant													
-----													
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	142.9	219.2	231.9	230.2	231.9	221.4	180.3
Bypass	kaf	1.5	1.5	1.5	1.5	1.5	1.5	20.0	43.0	142.8	182.9	156.4	1.5
Maximum generation	gwh	14.561	16.503	19.266	20.441	19.575	23.103	23.177	25.488	26.342	25.482	21.242	15.199
Actual generation	gwh	0.000	0.000	0.000	0.000	0.000	14.778	23.177	25.488	26.342	25.482	21.242	13.271
Percent max generation		0.	0.	0.	0.	0.	64.	100.	100.	100.	100.	100.	87.
Average kwh/af		0.	0.	0.	0.	0.	103.	106.	110.	114.	110.	96.	74.
Guernsey Power Plant													
-----													
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	53.9	25.9	53.6	51.8	53.6	53.6	55.8
Bypass	kaf	0.3	0.2	0.3	0.4	0.3	87.0	220.2	255.4	342.3	366.5	323.0	155.8
Maximum generation	gwh	3.381	3.396	3.603	3.683	3.339	3.748	1.834	3.795	3.667	3.795	3.795	3.404
Actual generation	gwh	0.000	0.000	0.000	0.000	0.000	3.748	1.834	3.795	3.667	3.795	3.795	3.404
Percent max generation		0.	0.	0.	0.	0.	100.	100.	100.	100.	100.	100.	100.
Average kwh/af		0.	0.	0.	0.	0.	70.	71.	71.	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:** The 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).

**Gigawatt 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.



## **Glossary (continued)**

**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.

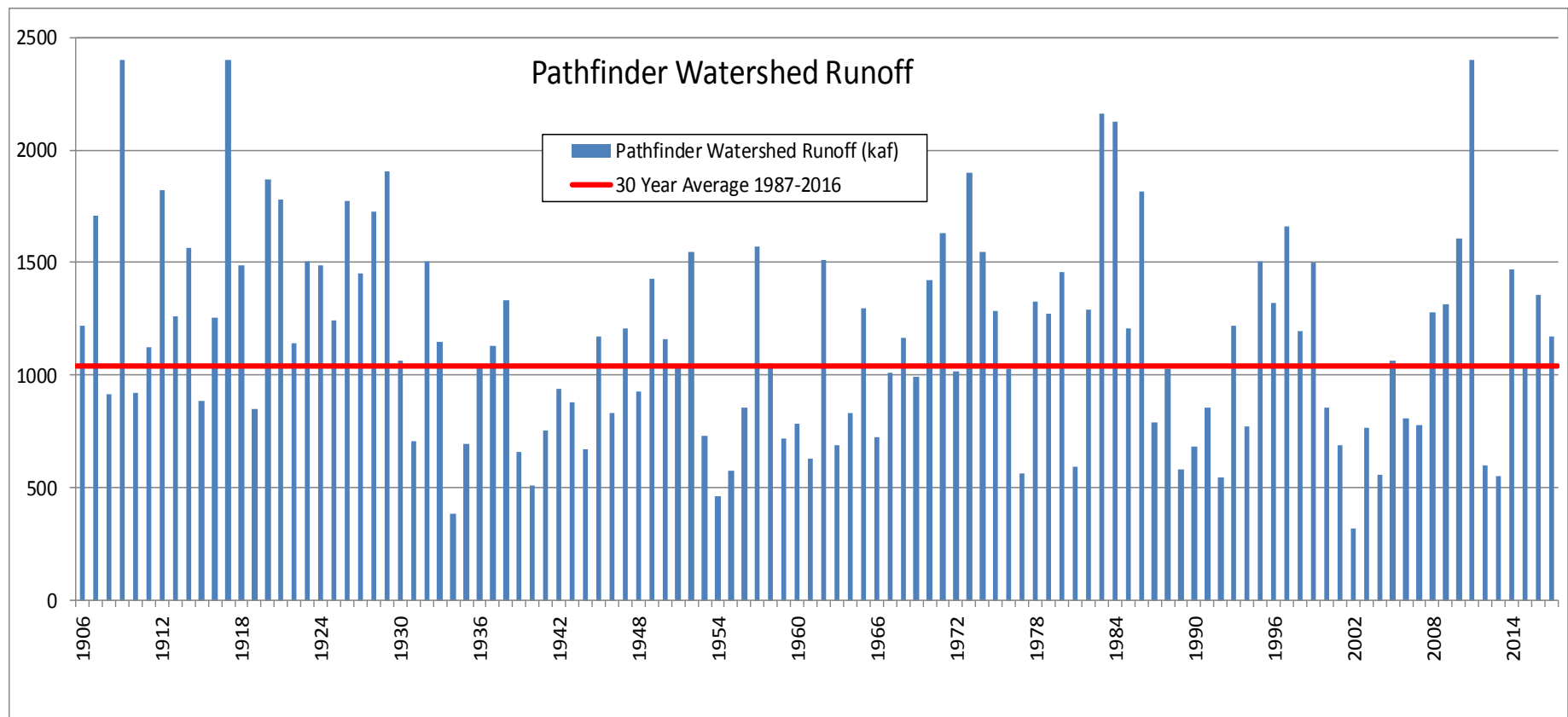
**Silt Run:** The name given to the practice of flushing silt from Guernsey Reservoir into the North Platte River downstream where the silt laden water is diverted by irrigators. The silt tends to settle in the slower moving water of canals and laterals helping to seal the wetted perimeter and reduce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



**Figure 20** Pathfinder Watershed Runoff 1906-2017

## Reservoir Data Definitions Sheets

### A. General:

Dam design and reservoir operation utilize reservoir capacity and water surface elevation data. To insure 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.

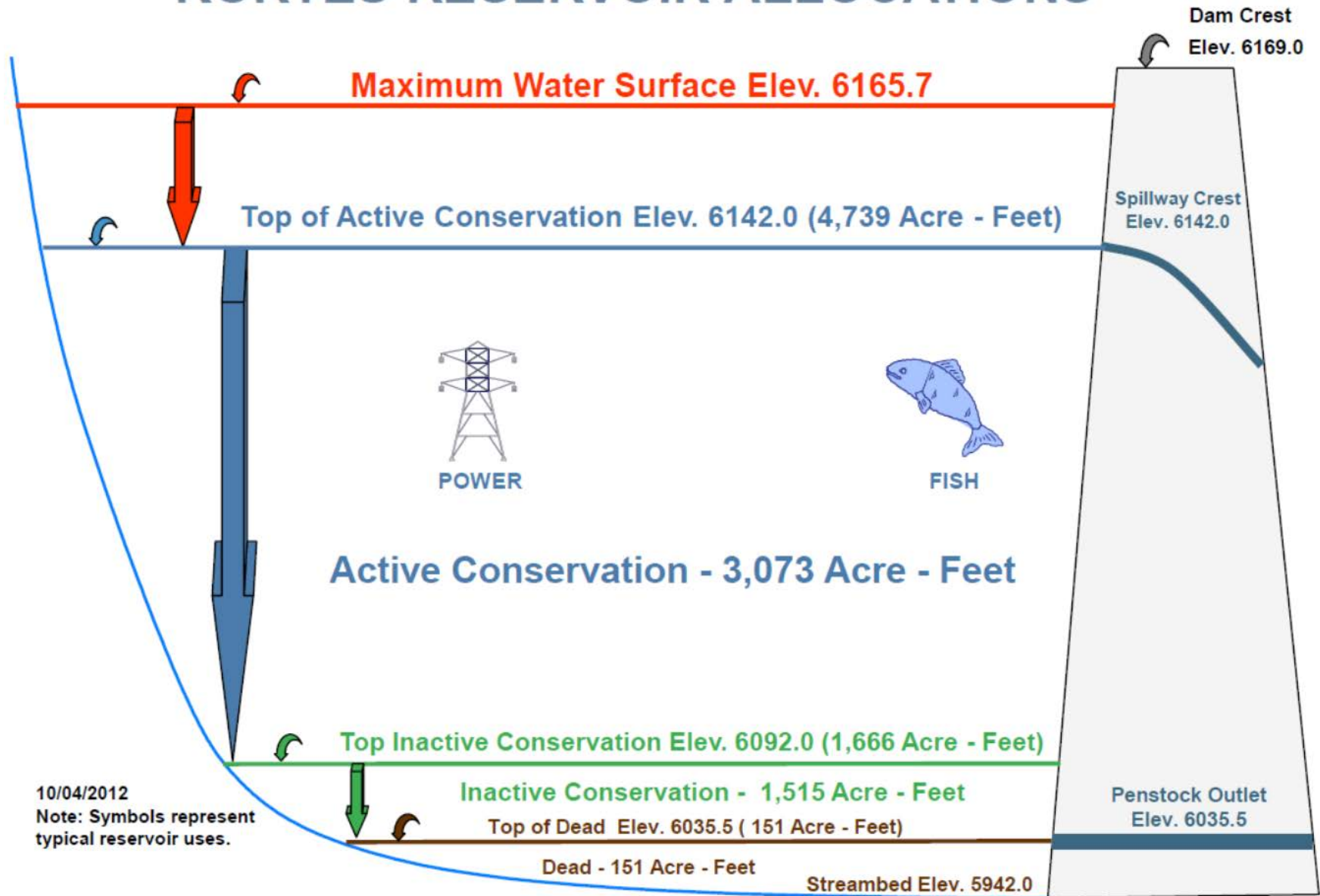
**Joint Use Capacity:** The reservoir capacity assigned to flood control purposes during certain periods of the year and to conservation purposes during other periods of the year.

**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.

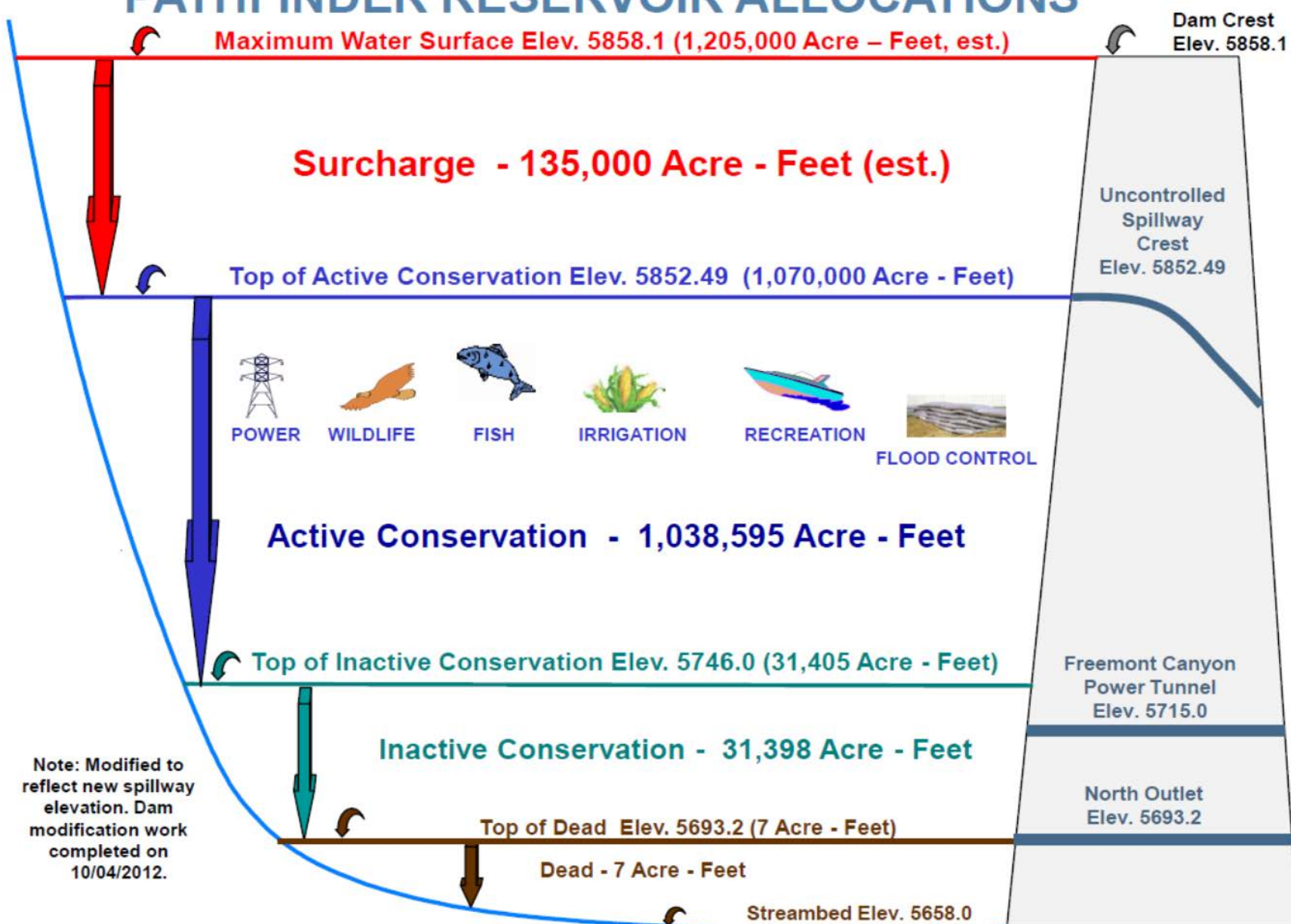
# SEMINOE RESERVOIR ALLOCATIONS



# KORTES RESERVOIR ALLOCATIONS

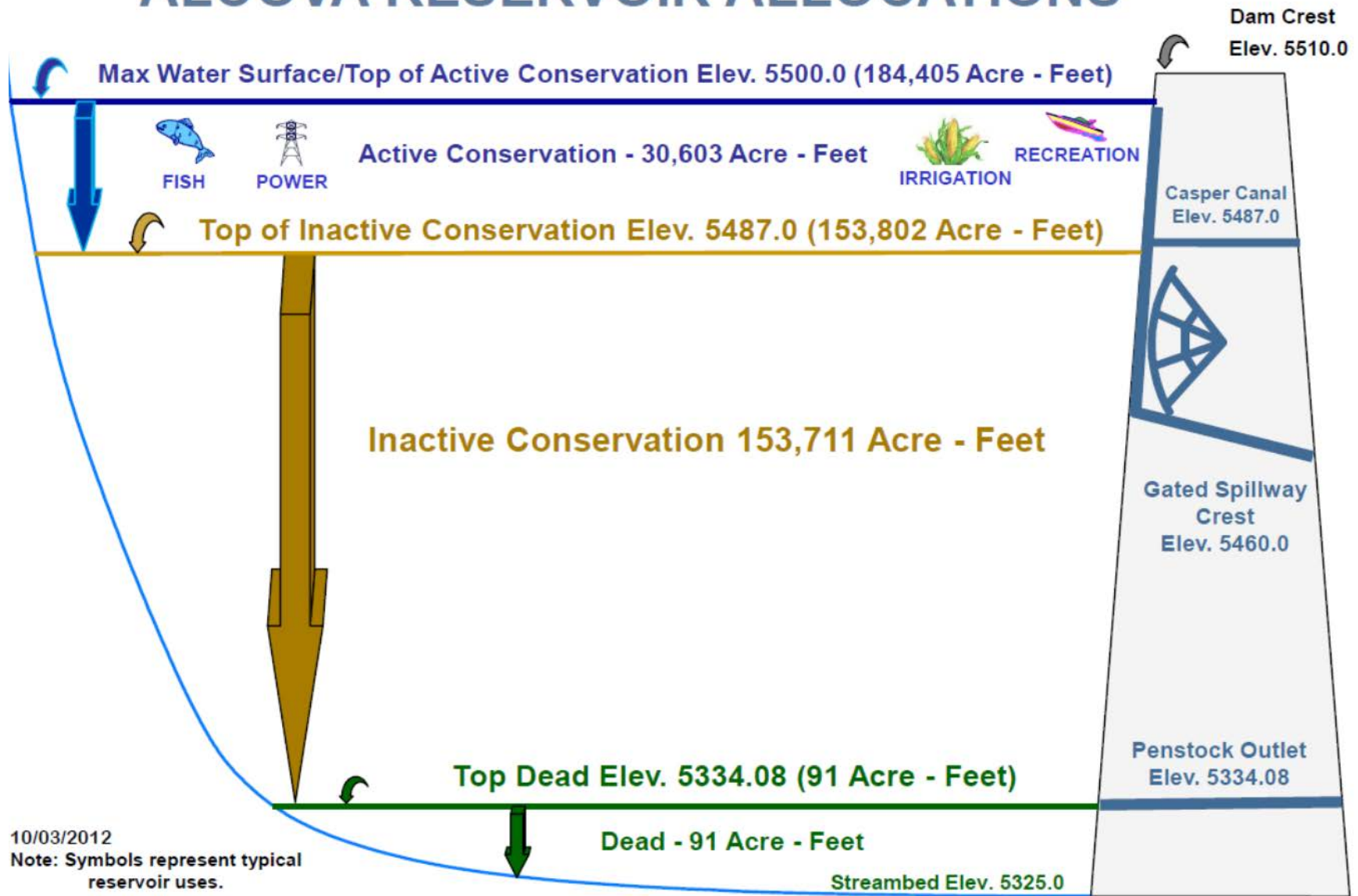


# PATHFINDER RESERVOIR ALLOCATIONS



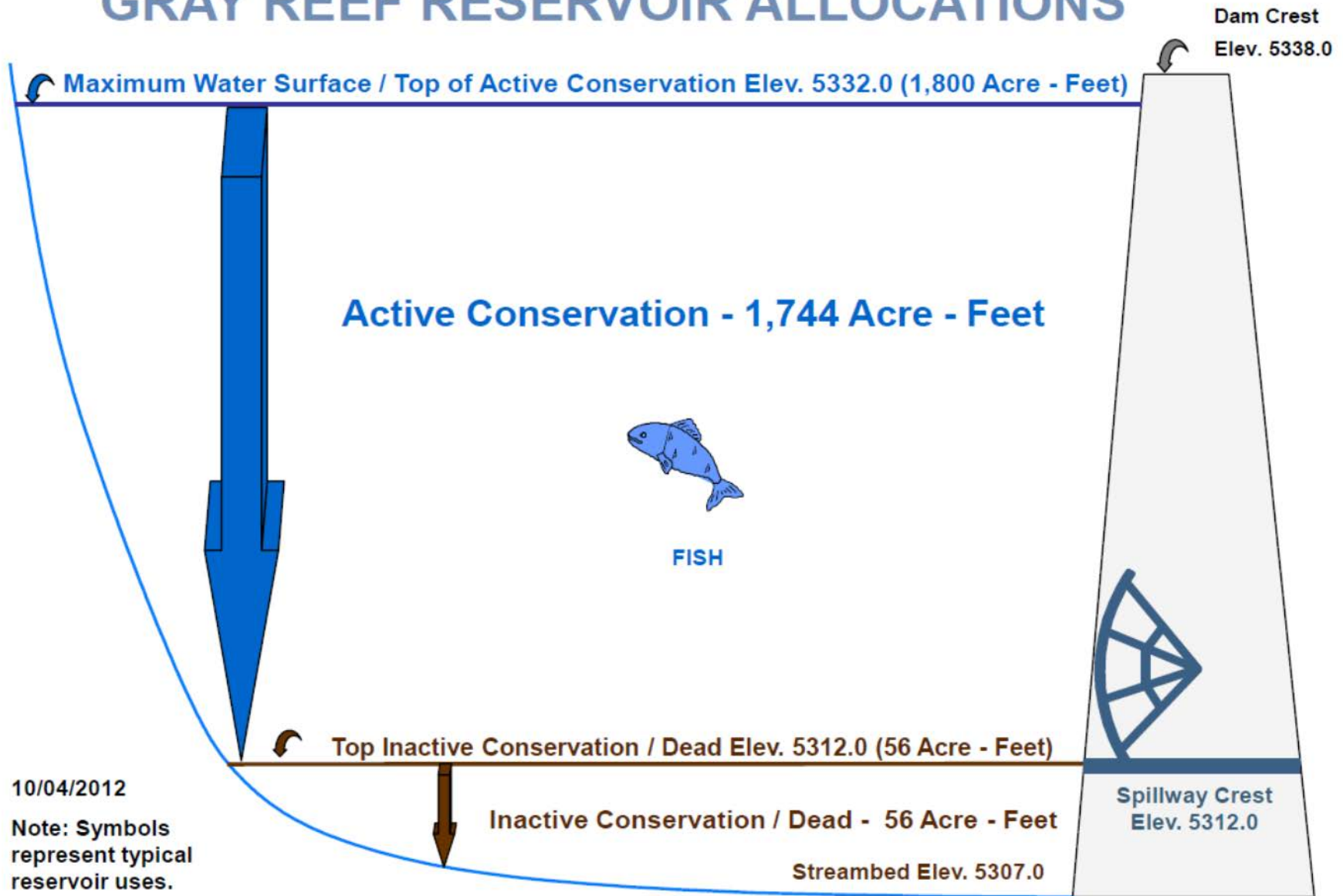


# ALCOVA RESERVOIR ALLOCATIONS

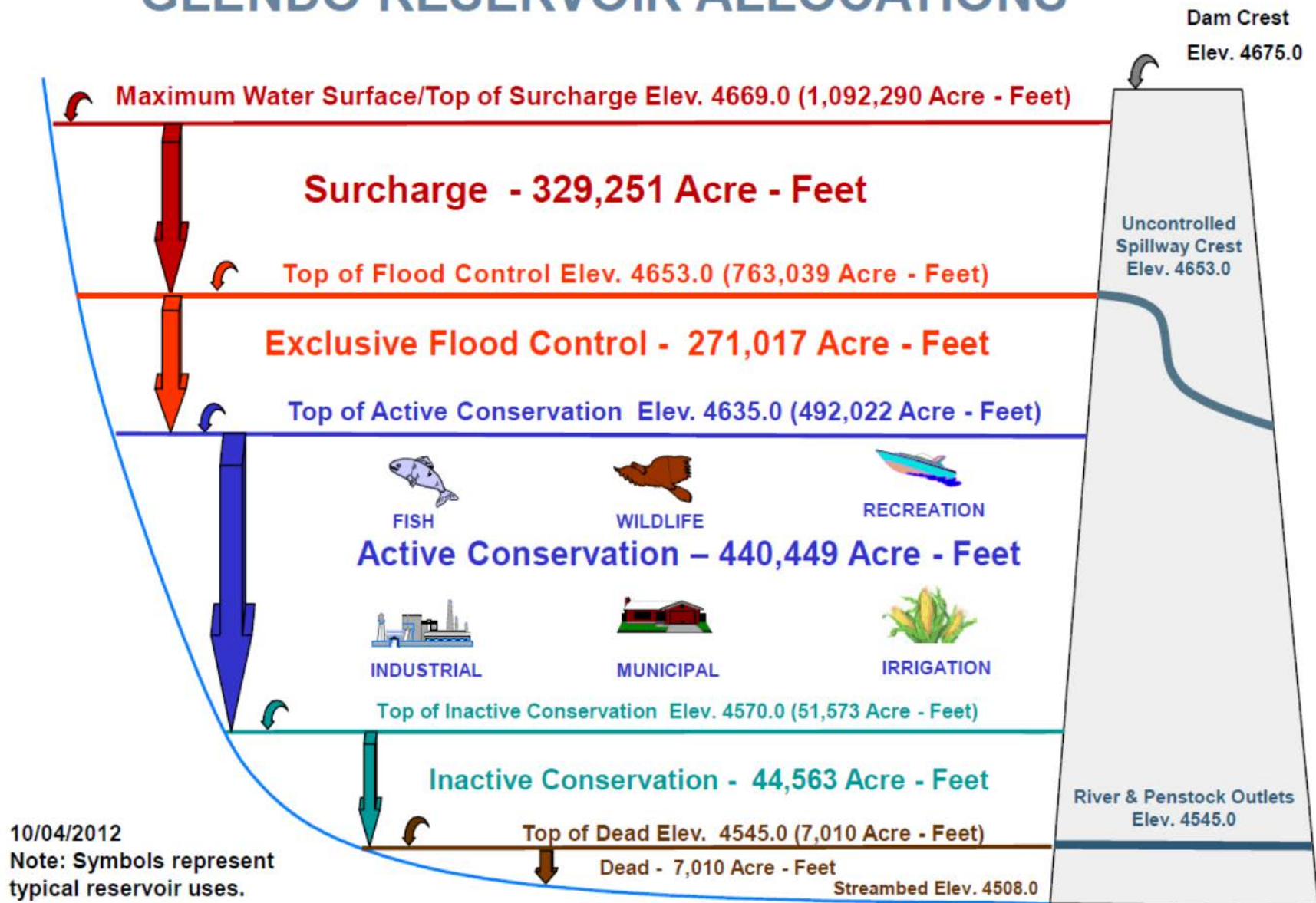




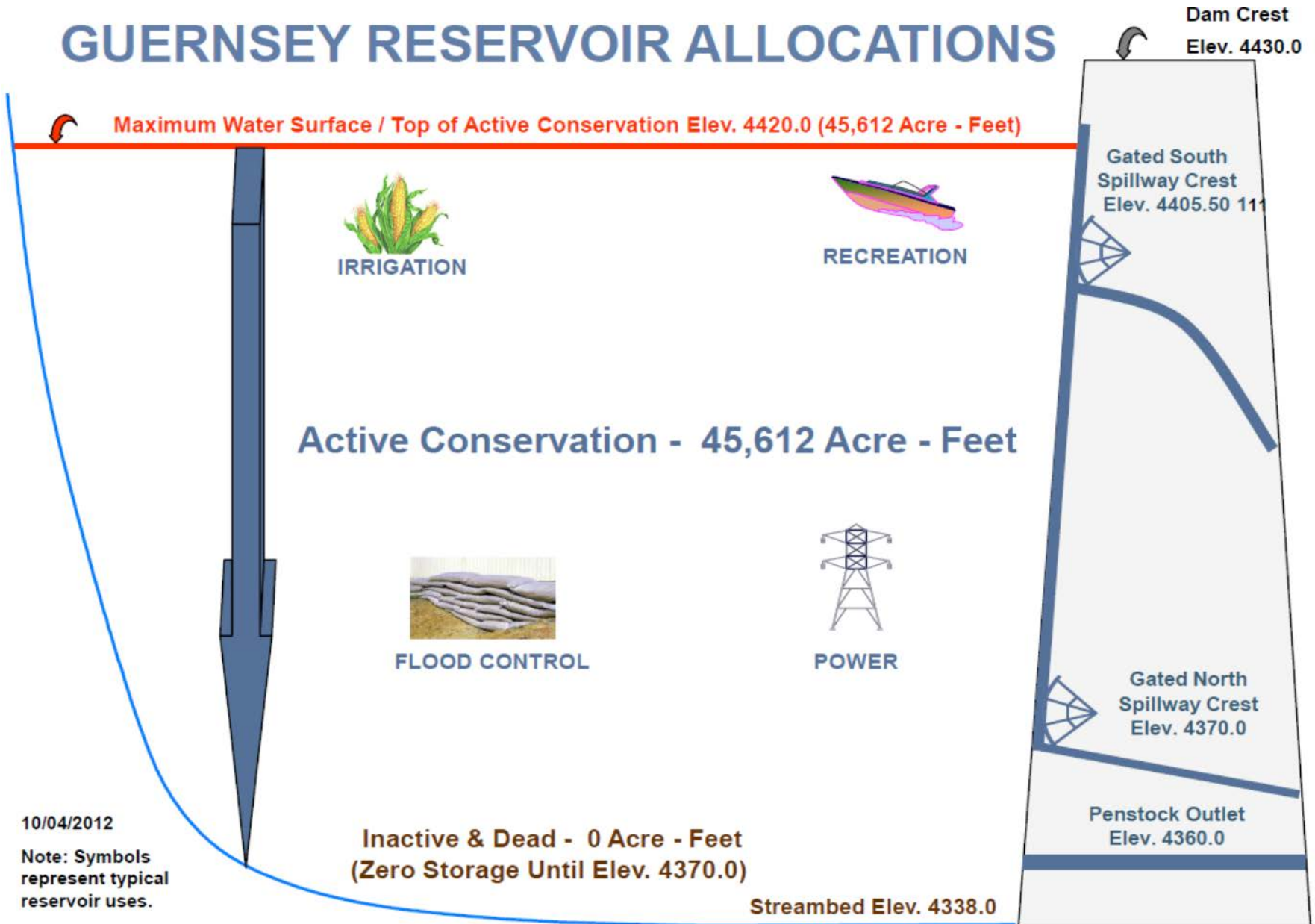
# GRAY REEF RESERVOIR ALLOCATIONS



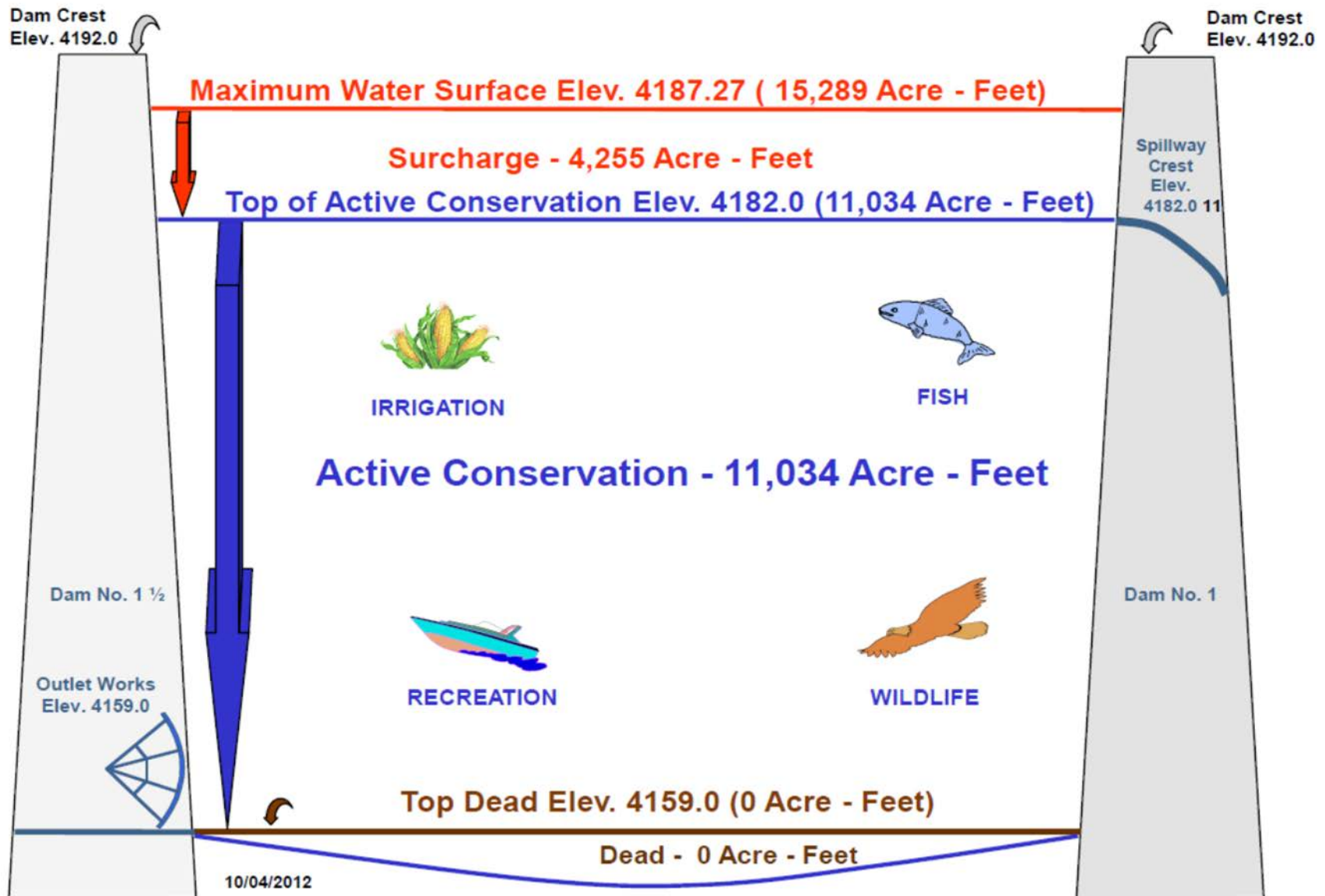
# GLEND0 RESERVOIR ALLOCATIONS



# GUERNSEY RESERVOIR ALLOCATIONS

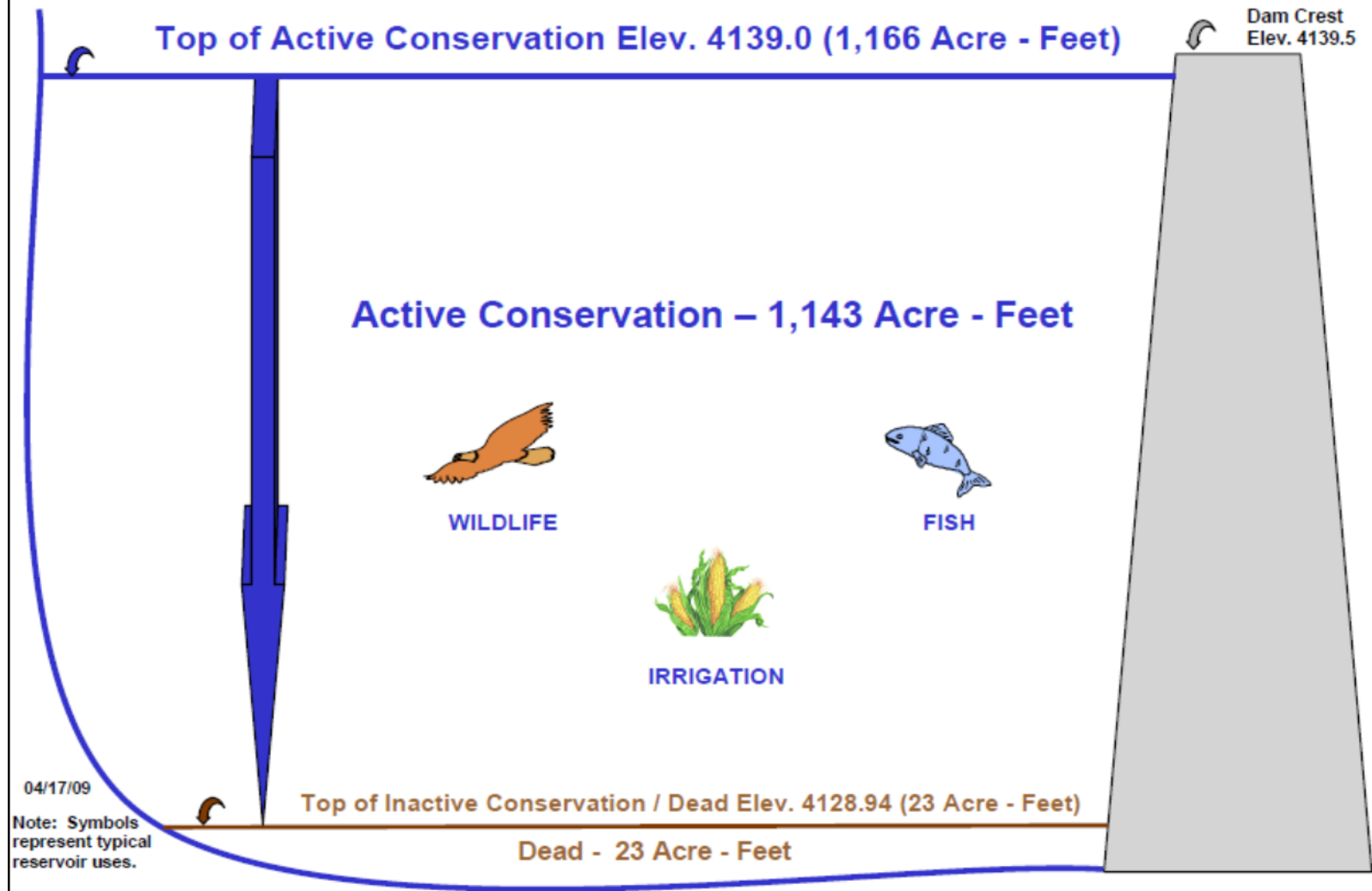


# LAKE ALICE RESERVOIR ALLOCATIONS

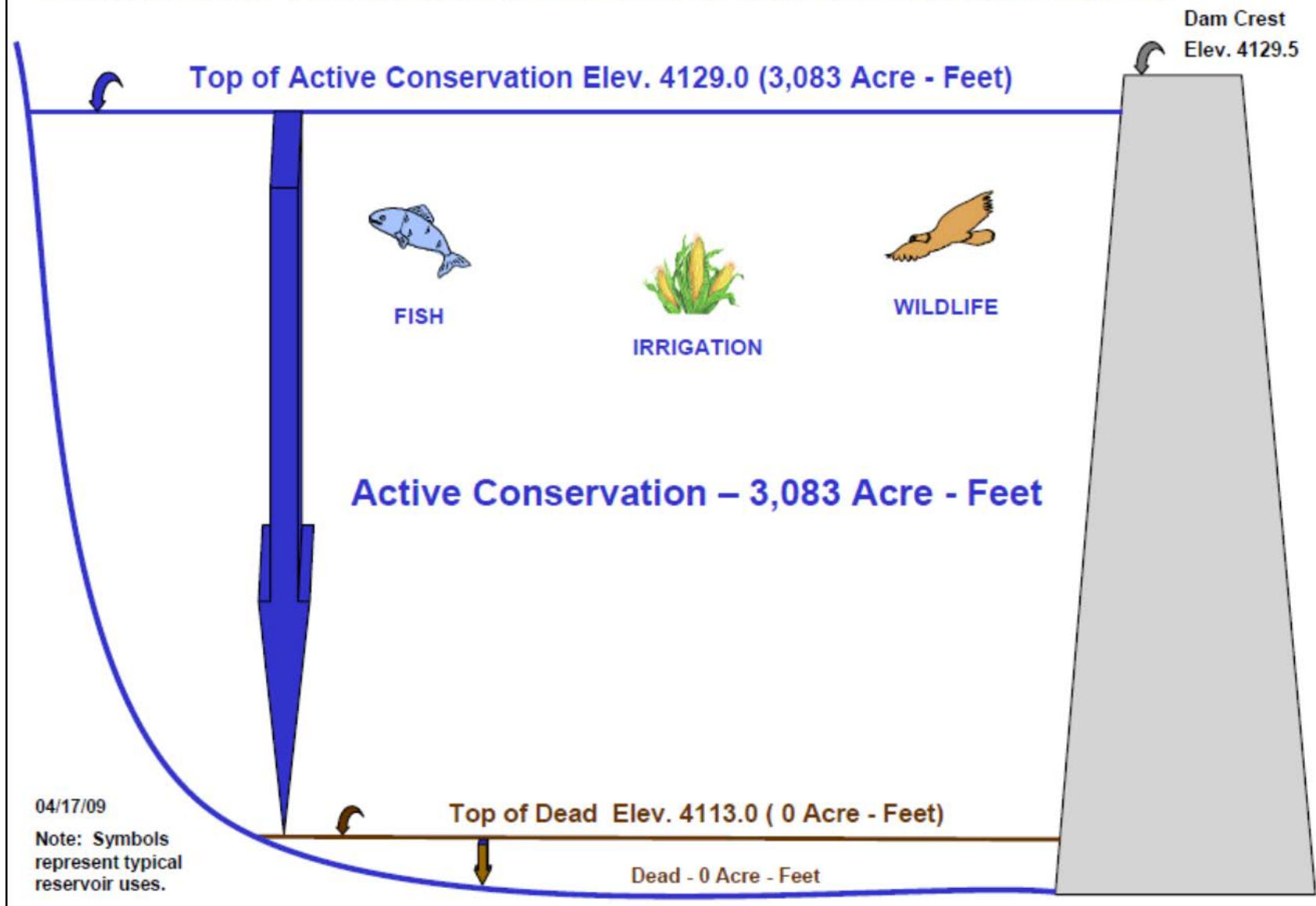




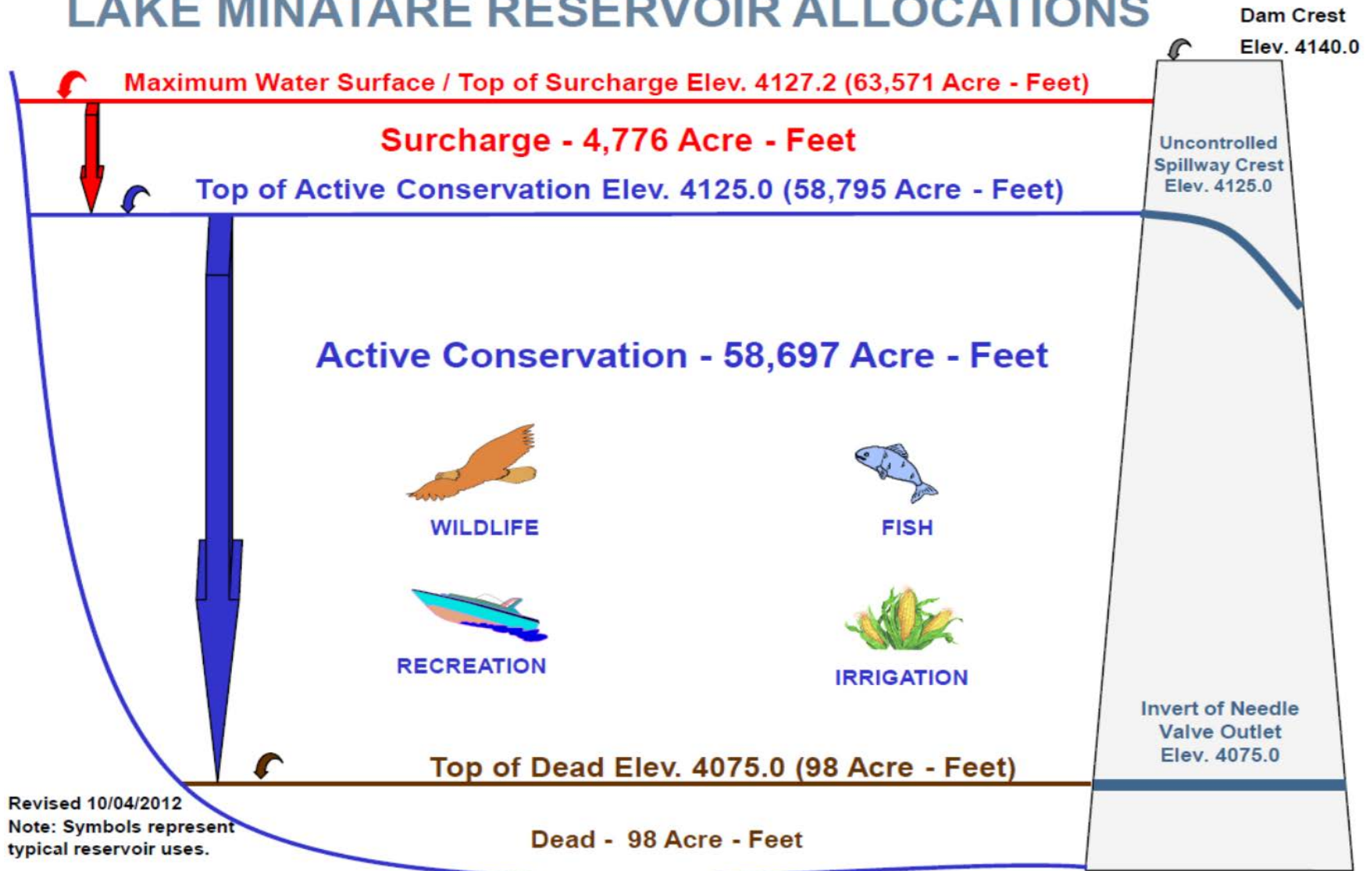
# LITTLE LAKE ALICE RESERVOIR ALLOCATIONS



# WINTERS CREEK RESERVOIR ALLOCATIONS



# LAKE MINATARE RESERVOIR ALLOCATIONS



**Figure 21 North Platte River Basin Map**

