

PREFACE

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

References to average in this document will refer to the average of the historical record for the years 1980-2009, except for water year 2011 information which uses the years 1981-2010. In each coming year this period will be advanced by one year to maintain a running 30-year average.

INTRODUCTION

The System of dams, reservoirs, and powerplants on the North Platte River (referred to as the "System" in this text) is monitored and in most cases operated and managed from the Wyoming Area Office (WYAO) in Mills, Wyoming. The operation and management of the System is aided by the use of a Programmable Master Supervisory Control, computerized accounting process, extensive Hydromet stations, control crest measurement weirs at gaging stations, SNOTEL stations, and a snowmelt runoff forecasting procedure which is 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 efficiency and to produce increased multipurpose benefits. The drainage basin which affects the System covers an area from northern Colorado to southeastern Wyoming, encompassing 16,224 square miles. Storage reservoirs affected by the System include four off stream reservoirs known as the Inland Lakes in western Nebraska as shown in Figure 21.

Approximately 70 to 80 percent of the annual North Platte River streamflow above Seminoe Dam occurs from snowmelt runoff during the April-July period. Primary water demand is irrigation, and the period of delivery of irrigation water normally extends from May through September. Figure 20 represents historical watershed runoff above Pathfinder Reservoir from 1906 through 2010. The System furnishes irrigation water to over 440,000 acres of land in Wyoming and Nebraska.

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

Major rivers which affect the water supply in the System are the North Platte River in Colorado, Wyoming, Medicine Bow, and Sweetwater Rivers in Wyoming.

The System has seven main stem reservoirs, six of which have powerplants with generating capacities totaling 237,200 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, operation, and maintenance of federal transmission facilities.

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

Table 1 North Platte River Reservoir Data

Reservoir	Dead Storage ¹ Acre-feet (AF)	Active Storage ² (AF)	Total Storage (AF)	Minimum Storage (AF)	Minimum Elevation (feet)
Seminole	556	1,016,717	1,017,273	31,670 ⁴	6239.00 ⁴
Kortes	151	4,588	4,739	1,666 ⁴	6092.00 ⁴
Pathfinder	7	1,016,500	1,016,507	31,405 ⁴	5746.00 ⁴
Alcova	91	184,314	184,405	137,610 ⁵	5479.50 ⁵
Gray Reef	56	1,744	1,800	56 ⁶	5312.00 ⁶
Glendo	11,033	778,369	789,402 ³	63,148	4570.00 ⁷
Guernsey	0	45,612	45,612	0	4370.00 ⁸
Total	11,894	3,047,844	3,059,738	265,555	

¹ Storage capacity below elevation of lowest outlet

² Total storage minus dead storage

³ Top of Conservation capacity 517,485 (acre-feet) AF (Elevation 4635.00 ft) with an additional 271,917 AF allocated to Flood Control (Elevation 4653.00 ft)

⁴ Minimum water surface elevation and capacity required for power generation
This level is the top of inactive capacity

⁵ Content and minimum elevation required for power generation, however, water cannot be delivered to Casper Canal when reservoir level is below 5487.00 ft (153,802 AF), the elevation of the Casper Canal Gate sill.

⁶ Top of dead capacity – spillway crest

⁷ Minimum water surface elevation for power generation

⁸ Elevation of the North Spillway Crest

SYSTEM PLANNING AND CONTROL

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

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

Experience has proven that proper utilization of the available water resource in a system such as this can be achieved only through careful budgeting of the anticipated water supply. The technical end product of this budgeting process is an Annual Operating Plan (AOP).

The System is operated on a water year basis (October 1 through September 30). Early in the water year an AOP is prepared, reviewed, and presented to the public. The AOP consists of three operation studies using reasonable minimum, reasonable maximum, and most probable inflow conditions determined from statistical analysis of historical inflow conditions. The AOP, as developed and reflected in the three operation studies, provides the flexibility to adjust operations as conditions change during the water year. Reclamation makes use of computer programs to revise and adjust the operating plan each month to reflect changing conditions. A computerized process of forecasting the anticipated water supply also aids the revision process during the months of February, March, April, and May. Figure 1 depicts North Platte Reservoirs Total Storage End of September Content for Water Years 1912 through 2010. Table 2 depicts A Summary of Reservoir Storage Content for Water Year 2010 (end of month). Table 9 depicts the Actual Reservoir Operations for Water Year 2010.

Table 2 Summary of Reservoir Storage Content for Water Year 2010 (End of Month)

Seminoe Reservoir			Pathfinder Reservoir			Alcova Reservoir		
Month	Storage	Record ¹	Month	Storage	Record ¹	Month	Storage	Record ¹
October	688,131	2 nd highest	October	721,869	3 rd highest	October	160,079	
November	693,183		November	725,659		November	156,538	
December	685,173		December	728,425		December	155,908	
January	681,048		January	731,894		January	155,998	
February	676,796		February	735,901		February	156,335	
March	689,763		March	736,425		March	157,758	
April	729,200		April	799,255		April	179,985	
May	805,663		May	911,765		May	179,985	
June	998,735		June	1,056,056		June	179,717	
July	957,002		July	921,427		July	180,254	
August	895,510		August	807,677		August	179,766	
September	850,880		September	743,616		September	180,474	
Glendo Reservoir			Guernsey Reservoir			Total System ²		
Month	Storage	Record ¹	Month	Storage	Record ¹	Month	Storage	Record ¹
October	167,172		October	8,399		October	1,751,815	2 nd highest
November	207,157		November	11,747		November	1,800,521	
December	240,337		December	14,427		December	1,830,704	
January	282,300		January	16,835		January	1,874,438	
February	319,455		February	18,887		February	1,913,234	
March	373,634		March	21,973		March	1,985,973	
April	484,769		April	26,317		April	2,225,707	
May	556,629		May	27,165		May	2,487,656	
June	716,458	Highest	June	28,162		June	2,985,927	
July	567,427	2 nd highest	July	28,122		July	2,660,688	
August	325,218	2 nd highest	August	27,769		August	2,242,347	
September	240,770	Highest	September	1,980		September	2,024,143	

¹ Record is the 30 year period from 1980-2009

² Total North Platte system includes storage in Seminoe, Kortes, Pathfinder, Alcova, Gray Reef, Glendo, and Guernsey Reservoirs

³ 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)

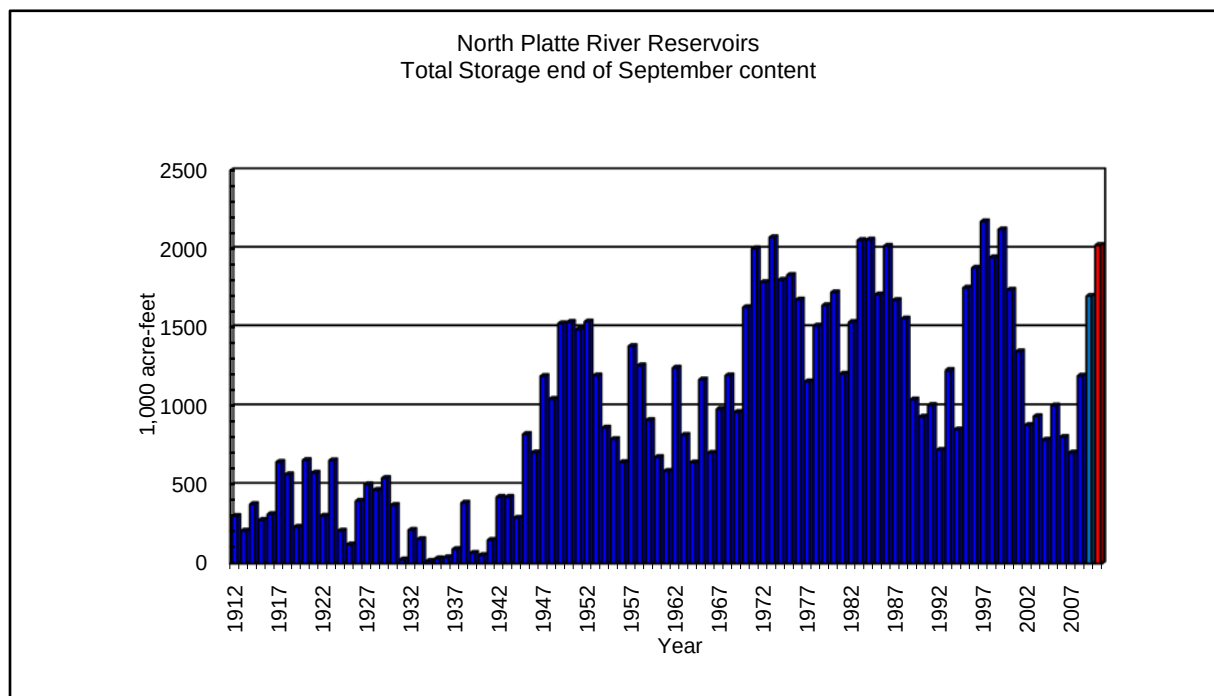


Figure 1 North Platte River Reservoirs Total Storage End of September Content (1912-2010)

SYSTEM OPERATIONS WATER YEAR 2010 Seminole Reservoir Inflow

Seminole Reservoir inflows were average or above average for the months October, November, January, February, and April through August. A total of 1,512,609 AF or 158 percent of the 30 year average entered the system above Seminole Reservoir during the water year. The monthly inflows ranged from a high of 244 percent of average in June 2010 to a low of 85 percent in March 2010. The actual April through July inflow totaled 1,241,919 (acre-feet) AF, which was 176 percent of the 30 year average of 705,500 AF. The high inflow was unexpected because the snowpack had been below average through March and for much of April. The Seminole computed inflow peaked for the water year on June 15, 2010, at 19,376 cubic feet per second (cfs), which is the historic peak inflow. The previous record inflow for a single day was 17,099 cfs. There were 21 consecutive days with inflows over 9,500 cfs. The total June inflow of 672,000 AF was the highest monthly inflow since 1983. Figure 2 depicts a comparison of average, water year 2010 and water year 2009 monthly inflow.

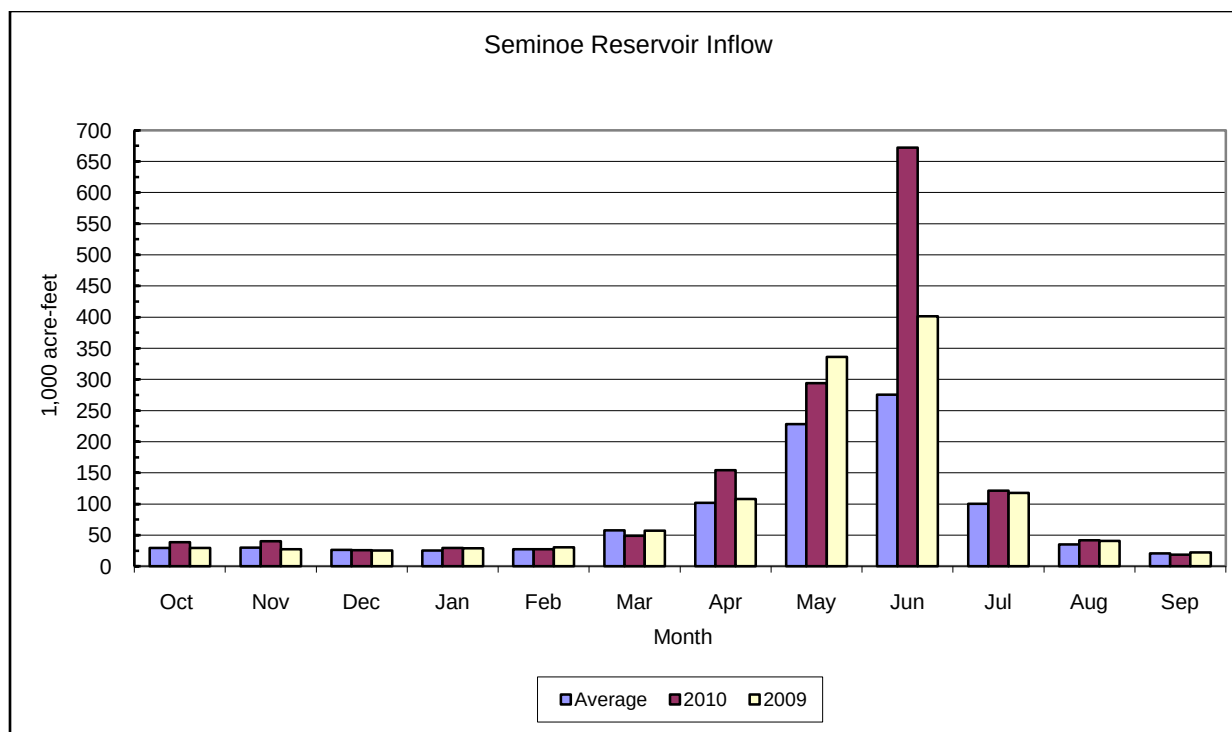


Figure 2 Seminole Reservoir Inflow

Seminole Reservoir Storage and Releases

Seminole Dam and Reservoir, on the North Platte River, is the main storage facility for the Kendrick Project. Construction of the dam was completed in 1939, providing a storage capacity of 1,017,273 AF. The powerplant contains three electrical generating units with a total capacity of 51 MW at a full release capability of about 4,050 cfs.

The spillway consists of a concrete-lined tunnel through the right abutment controlled by three fixed-wheel gates with a release capability of close to 48,000 cfs. Two 60 inch jet flow valves provide a low level river outlet with a flow capacity of 3,420 cfs.

At the start of water year 2010, Seminole Reservoir had a storage content of 684,730 AF, which was 110 percent of average and 67 percent of capacity. Seminole storage content increased to above average during the water year. The maximum Seminole Reservoir content was reached on June 20, 2010, at 1,009,383 AF. At the end of water year 2010, Seminole Reservoir storage content was 850,880 AF, which was 137 percent of average and 84 percent of capacity. See Figure 3 for a comparison of average, water year 2009 and water year 2010 monthly storage.

Releases from Seminole Dam averaged approximately 540 cfs from October 2009 through March 2010. The release was increased to approximately 2,700 cfs by the end of April, and then flows increased to 5,300 cfs by the end of May, and 15,500 cfs in mid June. The release was decreased to 1,600 cfs in July. The water release was reduced to approximately 530 cfs on September 16, 2010, which would be the flow for the winter. Table 3 depicts a summary of Seminole Reservoir information for water year 2010.

Table 3 Seminole Reservoir Hydrologic Data for Water Year 2010

Reservoir Allocations	Elevation (FT)	Storage (AF)	Storage Allocation (AF)
Top of Inactive and Dead	6239.00	31,670	31,670
Top of Active Conservation	6357.00	1,017,273	985,603
Crest of Dam (without Camber)	6361.00		

Storage-Elevation Data	Elevation (FT)	Storage (AF)	Date
Beginning of water year	6337.94	684,730	Oct 1, 2009 ²
End of water year	6348.22	850,880	Sep 30, 2010
Annual Low	6337.38	676,504	Mar 4, 2010
Historic Low ¹	6253.30	56,390	Apr 20, 1961
Annual High	6356.61	1,009,383	Jun 20, 2010
Historic High ¹	6359.29	1,073,050	Jun 20, 1949

¹ The daily records for this table are only available from water year 1946.

² Represents 0001 hours on October 1

Inflow-Outflow Data	Inflow ³	Date	Outflow	Date
Annual Total (AF)	1,512,609	Oct' 09 – Sep' 10	1,297,448	Oct' 09 – Sep' 10
Daily Peak (CFS)	19,376	June 15, 2010	14,616 ⁴	Jun 14, 2010
Daily Minimum (CFS)	5	Sep 9, 2010	425 ⁴	Oct 20, 2009
Peak Jet Flow Valve (CFS)				
Total Jet Flow Valve (CFS)				

³ Inflows are a computed number.

⁴ Daily peak and minimum are releases to the river.

Month	Inflow		Outflow		Content ⁶	
	KAF	% of Avg. ⁵	KAF	% of Avg. ⁵	KAF	% of Avg. ⁵
October	38.8	132	33.3	73	688.1	114
November	40.1	134	32.4	64	693.2	119
December	25.8	98	33.2	58	685.2	124
January	29.4	116	33.0	55	681.0	132
February	27.2	100	30.3	53	676.8	139
March	48.9	85	32.8	46	689.8	147
April	154.4	152	112.5	129	729.2	151
May	293.9	129	213.2	211	805.7	133
June	672.2	244	471.7	343	998.7	136
July	121.4	121	153.6	129	957.0	136
August	41.7	119	95.0	114	895.5	137
September	18.8	91	56.6	124	850.9	137
Annual	1512.6	158	1297.4	142		

⁵ The 30 year average is the period (1980-2009)

⁶ End of Month

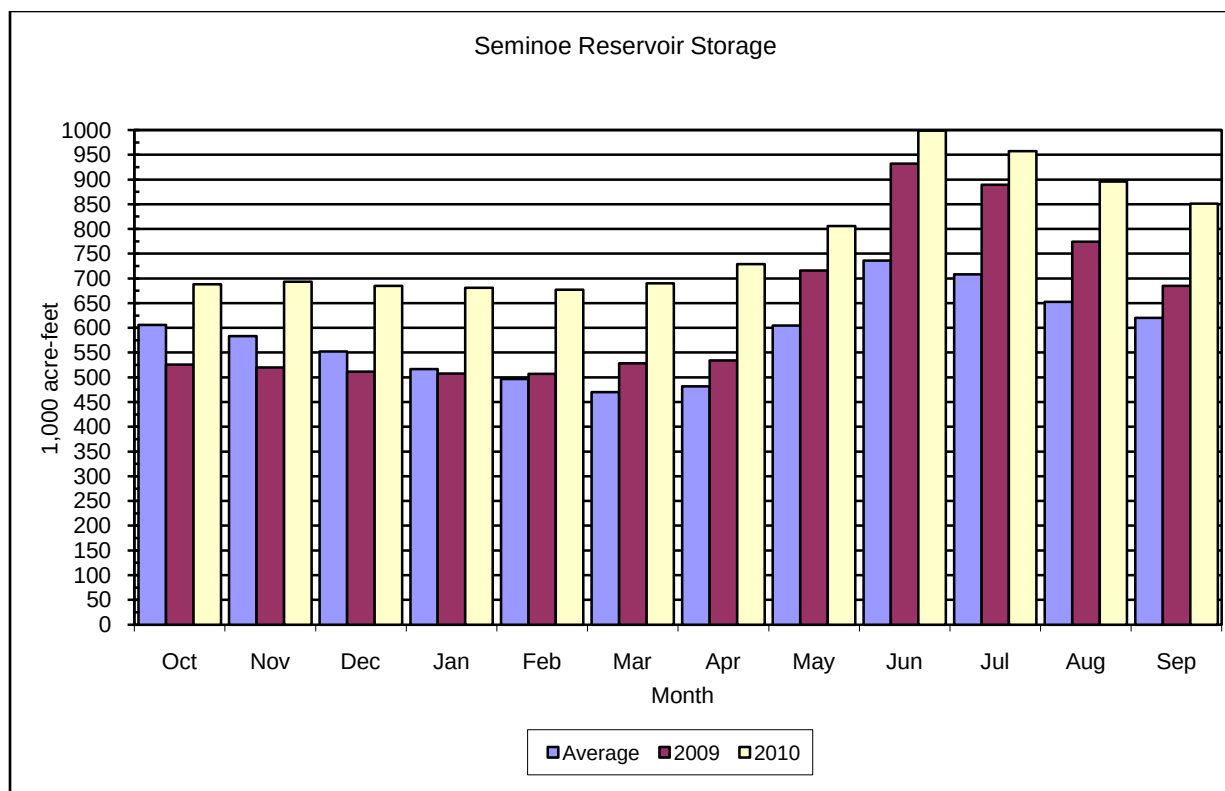


Figure 3 Seminole Reservoir Storage

Kortes Reservoir Storage and Releases

Completed in 1951, Kortes Dam, Reservoir, and Powerplant of the Kortes Unit (Pick-Sloan Missouri Basin Project) are located about 2 miles below Seminole Dam. It was the first unit initiated by the Bureau of Reclamation under the Missouri River Basin Project. Kortes Reservoir provides a maximum storage capacity of 4,739 AF at elevation 6165.7 feet. Kortes Powerplant has three electrical generating units with a total capacity of 36 MW and a release capability of approximately 3,000 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 90th Congress authorized the modification of the operation of Kortes Dam and Powerplant to provide a minimum streamflow of 500 cfs in the North Platte River between Kortes Reservoir and the normal headwaters of Pathfinder Reservoir. The minimum flow permits maintenance of a fishery in a stretch of the North Platte River commonly referred to as the "Miracle Mile".

Kortes releases averaged approximately 540 cfs from October 2009 through March 2010. The release was increased to approximately 2,700 cfs by the end of April then flows increased to 5,300 cfs by the end of May and 15,500 cfs in mid June. The release was decreased to 1,600 cfs in July. The water release was reduced to approximately 530 cfs on September 16, 2010, which would be the flow for the winter. In water year 2010 most releases were made through the Kortes Powerplant, except for occasions, when testing or maintenance required bypass releases. Bypass releases were also required when Seminole releases increased above 2,700 cfs.

The instantaneous release of over 15,500 cfs at both Seminole and Kortes lasted less than 24 hours, but was the highest release since 1983. Six consecutive days in June had average outflows of over 10,000 cfs.

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

Kortes Dam to Pathfinder Dam river gains were below average except for March and April 2010. The Kortes Dam to Pathfinder Dam river gains ranged from 146 percent in April 2010 to 14 percent of average in December 2009. The actual April through July river gains was 71,764 AF, which is 86 percent of the 30 year average of 83,800 AF. Figure 4 depicts a comparison of average, water year 2009 and water year 2010 monthly river gains.

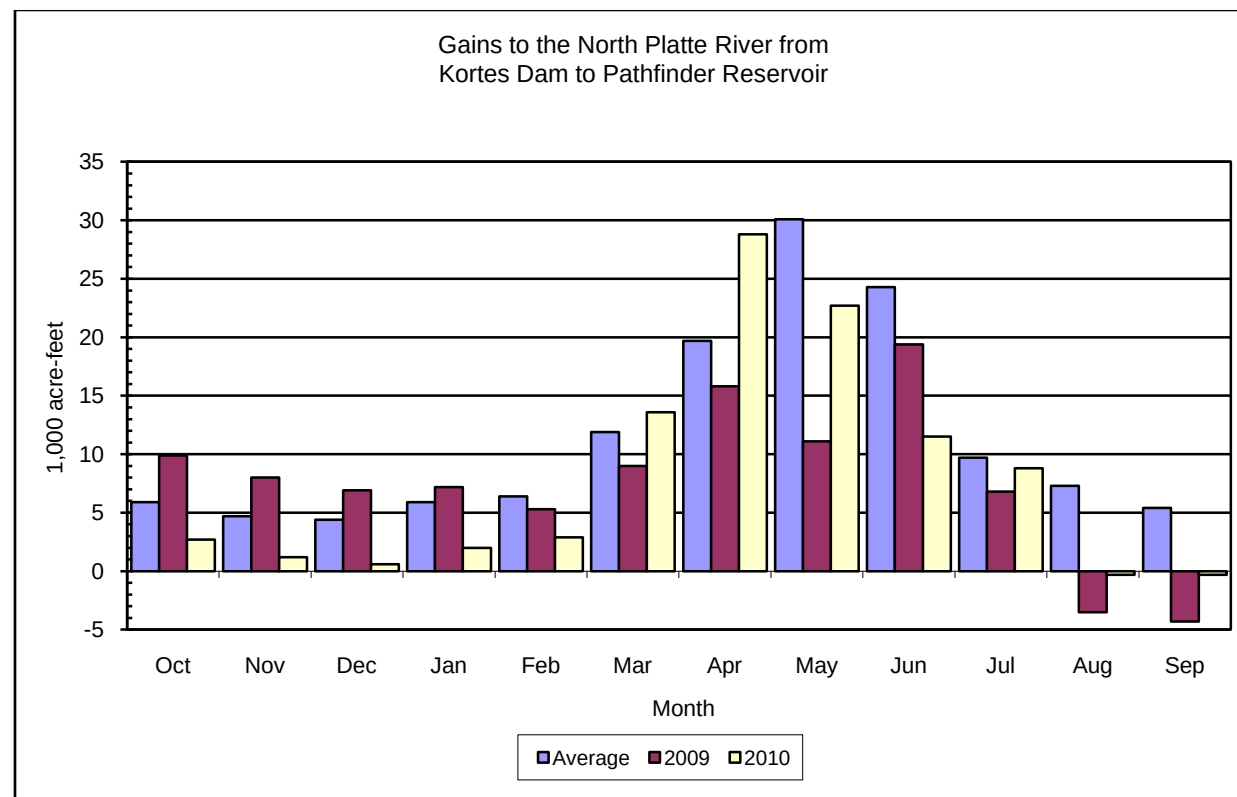


Figure 4 Gains to the North Platte River from Kortes Dam to Pathfinder Reservoir

Pathfinder Reservoir Storage and Releases

Pathfinder Dam and Reservoir, a major storage facility of the North Platte Project, has a total capacity of 1,016,507 AF at elevation 5850.10 feet. Construction of the dam was completed in 1909. Operationally, this structure is a bottleneck in the System with its restricted release capability of approximately 6,000 cfs. The rated capacity of the left abutment outlet works through the two 60-inch jet flow gates is 2,928 cfs at elevation 5850.10 feet. The flow capacity range of the 30-inch jet flow gate is from approximately 50 to 450 cfs. Depending on the elevation of the reservoir, as much as 2,900 cfs can be released through the Fremont Canyon Power conduit and discharged from the Fremont Canyon turbines at the powerplant 3 miles downstream. Fremont Canyon Powerplant has been reconditioned to a generation capacity of 66.8 MWs under full reservoir operating head. The uncontrolled spillway is a flat-crested weir of natural rock over the left abutment of the dam and a spill occurs any time the reservoir water surface exceeds 5850.10 feet. The calculated discharge capacity of the spillway is 33,940 cfs at reservoir elevation 5858.10 feet.

At the start of water year 2010, storage in Pathfinder Reservoir was 700,306 AF, which was 146 percent of average and 69 percent of capacity. Pathfinder storage remained above average all year (See Figure 5). The maximum Pathfinder Reservoir content for the water year was reached on June 22, 2010, at 1,060,142 AF which is 104 percent of capacity. The water year ended with 743,616 AF of water in storage in Pathfinder Reservoir, which was 153 percent of average and 73 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 through the Pathfinder Reservoir 30 inch Jet-Flow Valve to the river below Pathfinder Dam. The exception was when flood releases were needed and reached a maximum flow below Pathfinder Dam of approximately 4,500 cfs. Table 4 depicts a summary of Pathfinder Reservoir information for water year 2010.

On June 15, 2010, water began passing over the uncontrolled spillway at Pathfinder for the first time in 24 years. The reservoir's maximum elevation of 5852.05 was the highest since 1984. The highest flow on the spillway was over 4,400 cfs on June 22, 2010. On July 13, 2010, the reservoir dropped below 5850.10 feet and the uncontrolled spill stopped.

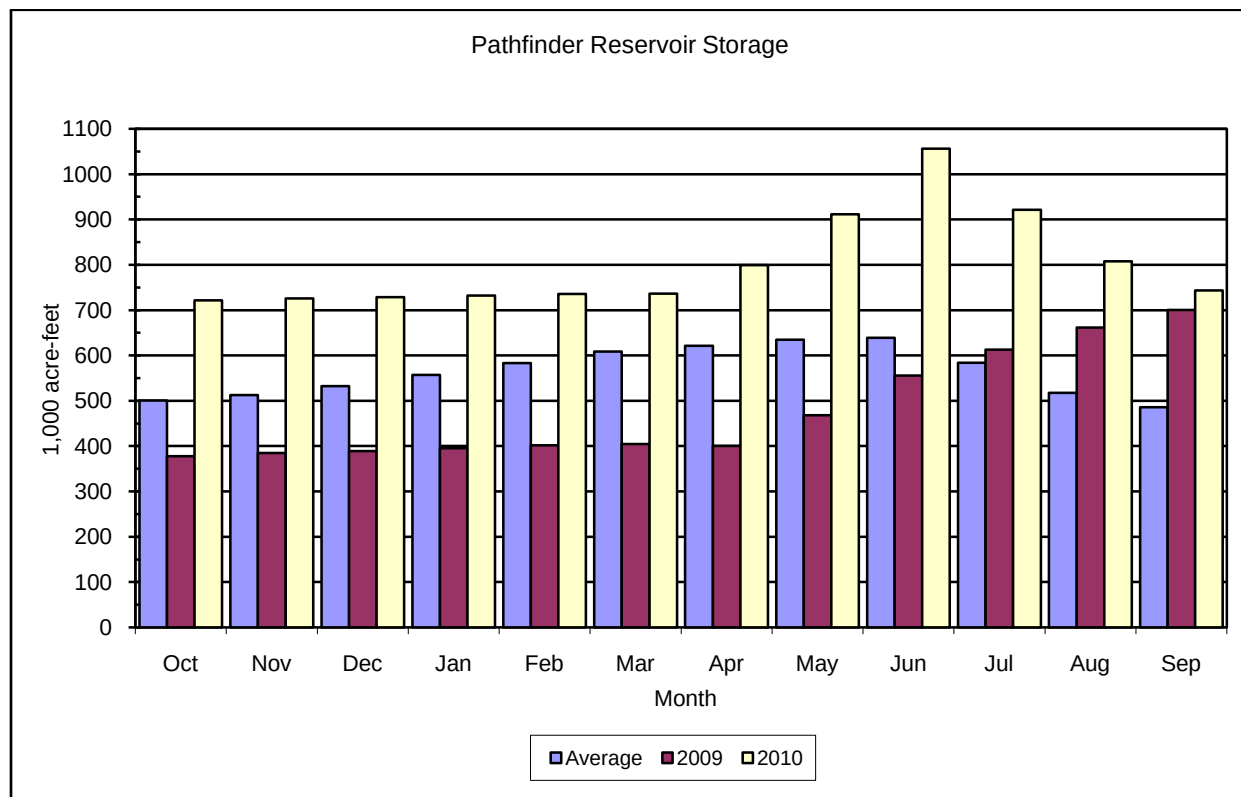


Figure 5 Pathfinder Reservoir Storage

Table 4 Pathfinder Reservoir Hydrologic Data for Water Year 2010

Reservoir Allocations	Elevation (FT)	Storage (AF)	Storage Allocation (AF)
Top of Inactive and Dead	5746.00	31,405	31,405
Top of Active Conservation	5850.10	1,016,507	985,102
Crest of Dam (without Camber)	5858.10		

Storage-Elevation Data	Elevation (FT)	Storage (AF)	Date
Beginning of water year	5833.83	700,306	Oct 1, 2009 ³
End of water year	5836.35	743,616	Sep 30, 2010
Annual Low	5833.83	700,306	Oct 1, 2009
Historic Low ^{2, 3}	5690.00	0	Sep 9, 1958
Annual High	5852.05	1,060,142	Jun 22, 2010
Historic High ¹	5853.11	1,083,755	Jul 7, 1983

¹ Daily records for this table are only available from water year 1946

² From September 1958 through January 1959, Pathfinder Reservoir was drained for construction of Fremont Canyon Tunnel.

³ Represents 0001 hours on October 1.

Inflow-Outflow Data	Inflow	Date	Outflow	Date
Annual Total (AF)	1,391,421	Oct, 2009 – Sep, 2010	1,285,424	Oct, 2009 – Sep, 2010
Daily Peak (CFS)	14,880	June 14, 2010	7,271	Jun 24, 2010
Daily Minimum (CFS)	24	August 31, 2010	43	Oct 9, 2009
Peak Jet Flow Valve (CFS)			2,725 ⁴	Jun 14, 2010
Total Jet Flow Valve (AF)			458,149 ⁵	Oct, 2009 – Sep, 2010

⁴ At the request of the Wyoming Game and Fish Department a yearly flow of 75 cfs will be provided through the Pathfinder Reservoir 30 inch Jet-Flow Valve to the river below Pathfinder Dam.

⁵ Includes water that flowed over the uncontrolled spillway from June 15 – July 13, 2010.

Month	Gain from Kortes		Inflow ⁶		Outflow		Content ⁸	
	KAF	% of Avg. ⁵	KAF	% of Avg. ⁵	KAF	% of Avg. ⁵	KAF	% of Avg. ⁵
October	2.7	46	35.9	70	11.8	42	721.9	144
November	1.2	26	33.6	61	26.7	64	725.7	142
December	0.6	14	33.8	55	30.4	75	728.4	137
January	2.0	34	35.0	53	30.9	77	731.9	131
February	2.9	45	33.2	52	27.8	76	735.9	126
March	13.6	114	46.4	55	42.1	75	736.4	121
April	28.8	146	141.3	132	74.6	82	799.3	129
May	22.7	75	235.5	180	116.6	104	911.8	144
June	11.5	47	433.2	268	328.9	220	1,056.1	165
July	8.8	91	162.6	126	285.1	163	921.4	158
August	-0.3	NA ⁷	94.7	104	198.7	133	807.7	156
September	-0.3	NA ⁷	56.3	104	111.8	138	743.6	153
Annual	94.2	69	1391.4	132	1285.4	128		

⁵ 30 year average is the period (1980-2009)

⁶ The inflow includes the gain from Kortes Dam to Pathfinder Dam.

⁷ Represents a negative number that makes the percentage meaningless.

⁸ End of Month

Alcova and Gray Reef Reservoirs Storage and Releases

Alcova Dam and Reservoir is part of the Kendrick Project. The dam serves as a diversion dam for the Casper Canal and the reservoir as a forebay for the Alcova Powerplant. The dam, located about 10 miles downstream from Pathfinder Dam, was completed in 1938. Reservoir storage capacity is about 184,405 AF at elevation 5500 feet, of which only the top 30,600 AF is active capacity available for irrigation of the Kendrick Project. The powerplant consists of two electrical generating units with a total installed capacity of 36 MW at a full release capability of about 4,100 cfs. The spillway is a concrete lined open channel in the left abutment of the dam controlled by three 25 by 40 foot gates with a capacity of 55,000 cfs at a reservoir level of 5500 feet. The reservoir is operated within a 2 foot range during summer and winter but at levels 10 feet apart. 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, 2009, and continued through October 31, 2009, when the reservoir reached its normal winter operating range of $5488 \pm$ one foot. The refill of Alcova Reservoir was initiated on April 1, 2010. The water surface elevation was raised above 5497 feet on April 23, 2010, and the reservoir was maintained within 1 foot of elevation 5498 throughout the summer.

Gray Reef Dam and Reservoir is part of the Glendo Unit, Oregon Trail Division, Pick-Sloan Missouri Basin Program. The dam which was completed in 1961 is a three-zoned rock and earthfill 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.

The Gray Reef releases were maintained at 500 cfs from October 2009 until March 21, 2010. At the request of the Wyoming Game and Fish Department, a series of flushing flows were initiated on March 22, 2010, and continued through March 26, 2010, 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 were returned to 500 cfs until April 8, 2010. Releases for the remainder of the water year were adjusted to provide flood benefits and evacuate excess water from the system. The largest daily release of water for the water year occurred on June 23, 2010, at 7,005 cfs.

The maximum release of 7,000 cfs out of Gray Reef was the highest since 1984. In addition, there were 14 consecutive days with releases over 5,600 cfs. Releases had not been this high in 26 years as well. As a result, the city of Casper had also not seen flows through town that high since 1984. The city and county emergency management crews provided sand bags for businesses and residences to put around their property to avoid damage. The gage in Casper recorded a maximum instantaneous flow of 7,193 cfs.

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

River gains from Alcova Dam to Glendo Reservoir were below average for October through March except January was above average. The Alcova Dam to Glendo Reservoir river gains ranged from highs of 314 percent in June 2010, 229 percent in April 2010, and 202 percent of average in May 2010. The actual April through July gain was 303,827 AF, which was 243 percent of average. The maximum computed daily river gain of 4,396 cfs occurred on June 14, 2010 and the daily computed Glendo Reservoir inflow peaked on June 14, 2010, at 8,699 cfs. Figure 6 depicts a comparison of average, water year 2010 and water year 2009 monthly river gains.

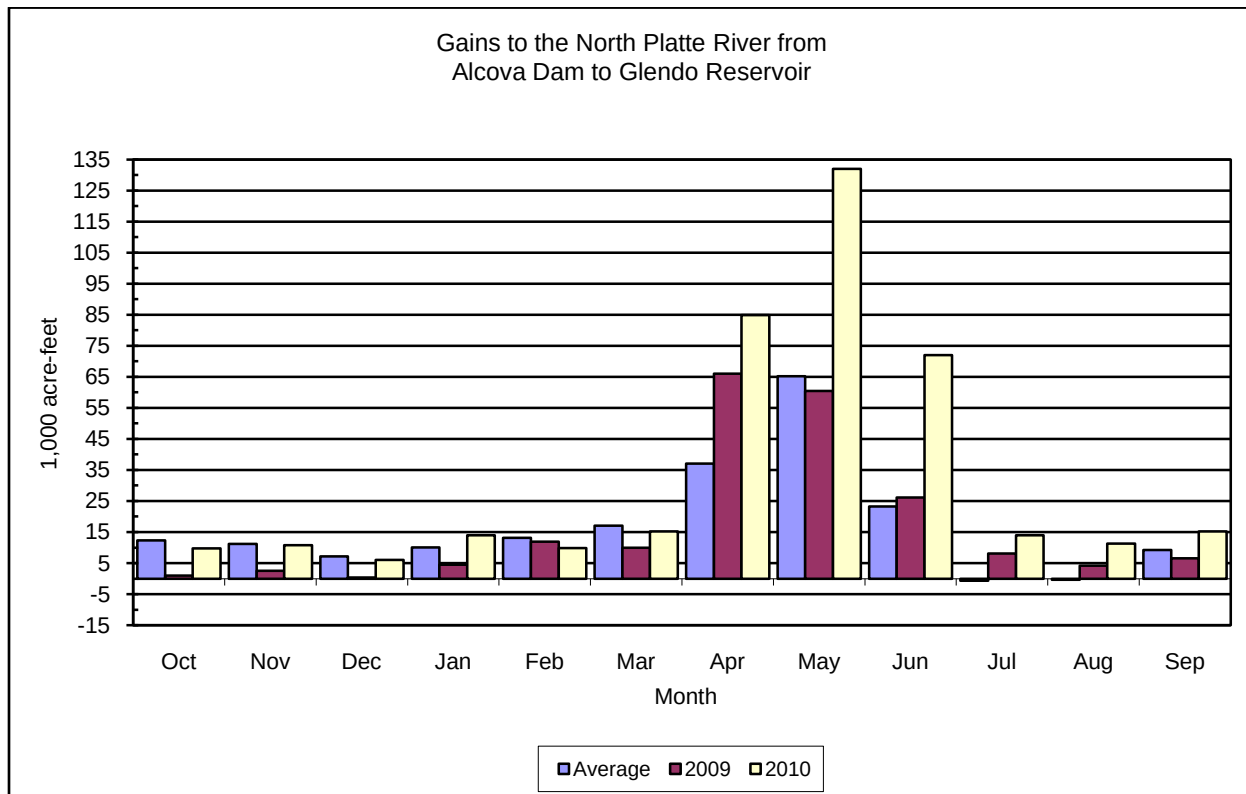


Figure 6 Gains to the North Platte River from Alcova Dam to Glendo Reservoir

Glendo Reservoir Storage and Releases

Glendo Dam and Reservoir is the only storage facility for the Glendo Unit. The reservoir has a storage capacity of 789,402 AF, including 271,917 AF allocated to flood control. Glendo Powerplant consists of two electrical generating units, with a total installed capacity of 38 MW. With both generating units operating at capacity and the reservoir water surface at elevation 4635.0 feet, approximately 3,920 cfs can be released through Glendo Powerplant. The reinforced concrete spillway has an ungated ogee crest. The spillway capacity at elevation 4669.0 feet, (6 feet below the crest of the dam), is 10,335 cfs.

The outlet works from Glendo Dam consist of the primary outlet works which discharge at the powerplant, and the low-flow outlet which discharges to the river immediately below the dam. The three primary outlet gates can release a combined discharge of 13,000 cfs with the powerplant shut down. During normal operation when the reservoir elevation is below the top of conservation storage (4635 feet), outlet works discharges should typically remain below 5,500 cfs. This precautionary practice is to minimize the potential for damage to the stilling basin and training walls. The low-flow outlet works are operated to maintain a continuous release of approximately 25 cfs. This provides a reliable water source for the downstream wetland area and results in associated fish and wildlife benefits.

Glendo Reservoir storage was 125,179 AF at the beginning of water year 2010, which was 113 percent of average but only 24 percent of active conservation of 517,485 AF. Water releases from Glendo Reservoir were initiated on April 14, 2010, in order to move water to the Inland Lakes. The reservoir reached a maximum storage for the year of 717,125 AF (elevation 4648.83 feet) on June 29, 2010. At the end of the water year, Glendo Reservoir contained 240,770 AF of water (water surface elevation 4605.60 feet) which was 214 percent of average and only 47 percent of active conservation of 517,485 AF. Figure 7 depicts water year 2010 and water year 2009 end of month reservoir storage compared to average. Table 5 depicts a summary of Glendo Reservoir information for water year 2010.

Glendo Reservoir entered the flood pool on May 23, 2010, and stayed there until August 7, 2010. The peak storage of 717,125 AF was the highest storage since 1983. At this peak, there was over 13 feet of water in the flood pool. When Glendo Reservoir is in the flood pool, releases are directed by the Corps of Engineers, and frequent coordination took place between Wyoming Area Office (WYAO) and the Corps of Engineers regarding Glendo Operations during that time. Several factors contributed to the high reservoir level: very high inflows to the upper system, high Alcova to Glendo gains, considerable rain in the irrigation service area which eliminated much of the irrigation demand in May and June, and high tributary inflows downstream of Guernsey which limited the amount of water that could be released from Glendo without making downstream flooding worse. The high reservoir caused extensive damage to Glendo State Park recreation facilities around the reservoir.

Table 5 Glendo Reservoir Hydrologic Data for Water Year 2010

Reservoir Allocations	Elevation (FT)	Storage (AF)	Storage Allocation (AF)
Top of Inactive and Dead	4570.00	63,148	63,148
Top of Active Conservation	4635.00	517,485	454,337
Top of Exclusive Flood Control	4653.00	789,402	271,917
Maximum water surface(surcharge)	4669.00	1,118,653	329,251
Crest of Dam (without Camber)	4675.00		

Storage-Elevation Data	Elevation (FT)	Storage (AF)	Date
Beginning of water year	4586.09	125,179	Oct 1, 2009 ¹
End of water year	4605.60	240,770	Sep 30, 2010
Annual Low	4586.09	125,179	Oct 1, 2009
Historic Low	4548.10	15,140	Sep 28, 1966
Annual High	4648.83	717,125	Jun 29, 2010
Historic High	4650.94	758,830	May 28, 1973

¹ Represents 0001 hours on October 1.

Inflow-Outflow Data	Inflow	Date	Outflow ²	Date
Annual Total (AF)	1,601,486	Oct, 2009 – Sep, 2010	1,452,312	Oct, 2009 – Sep, 2010
Daily Peak (CFS)	8,699	June 14, 2010	7,299	August 10, 2010
Daily Minimum (CFS)	237	December 9, 2009	23 ³	December 17, 2009
Peak Bypass Release (CFS)			3,745	Jul 10, 2010
Total Bypass Release (AF)			534,587 ³	Oct, 2009 – Sep, 2010

² Includes the average daily release of approximately 25 cfs from the low flow outlet works.

³ A low flow outlet works was completed in 1993 and an average release of 25 cfs is maintained all year.

Month	Gain from Alcova		Inflow ⁷		Outflow		Content ⁹	
	KAF	% of Avg. ⁵	KAF	% of Avg. ⁵	KAF	% of Avg. ⁵	KAF	% of Avg. ⁵
October	9.7	79	44.5	68	1.8	43 ⁶	167.2	98
November	10.8	96	41.9	77	1.5	56 ⁶	207.2	93
December	6.0	83	35.3	74	1.9	146 ⁶	240.3	90
January	14.0	139	44.0	89	1.7	142 ⁶	282.3	90
February	9.8	75	38.9	81	1.5	33 ⁶	319.5	89
March	15.2	89	57.1	83	1.6	8 ⁶	373.6	92
April	84.9	229	134.8	129	20.9	35	484.8	108
May	132.0	202	227.1	140	150.6	126	556.6	115
June	72.9	314	375.1	245	208.7	128 ⁸	716.5	153
July	14.0	NA ⁴	289.4	189	430.5	137 ⁸	567.4	188
August	11.3	NA ⁴	195.7	148	432.2	148 ⁸	325.2	233
September	15.2	165	117.8	141	199.3	182 ⁸	240.8	214
Annual	395.8	193	1601.5	143	1452.2	133		

⁴ Represents a negative number that makes the percentage meaningless.

⁵ 30 year average is the period (1980-2009)

⁶ 16 year average is the period (1994-2009) 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 16 year average is used for the months of October through March. The March average is skewed high due to evacuation of space in the upper system to allow for snow melt run off. The higher March average caused the percent of average to be lower than normal.

⁷ Inflow include the gain from Alcova Dam to Glendo Dam.

⁸ Release of excess water due to high inflows.

⁹ End of month

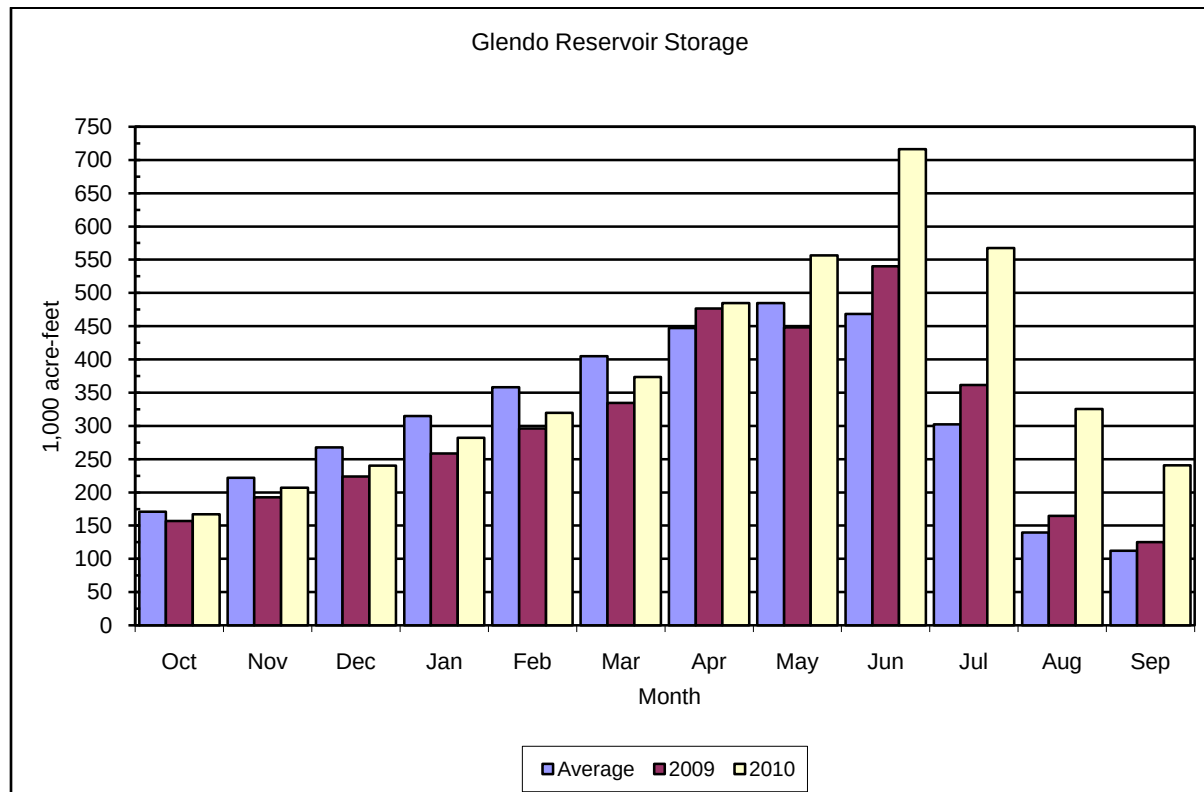


Figure 7 Glendo Reservoir Storage

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

The river gains between Glendo Dam and Guernsey Dam during water year 2010 were below average for December 2009, January, August, and September 2010. The Glendo Dam to Guernsey Reservoir river gains ranged from a high of 465 percent in June 2010 to 87 percent of average in December 2009, with the month of August having a negative value making a percentage value meaningless. On July 21, 2010, daily computed inflow to Guernsey Reservoir peaked at 7,253 cfs. Figure 8 depicts a comparison of average, water year 2010 and water year 2009 monthly river gains.

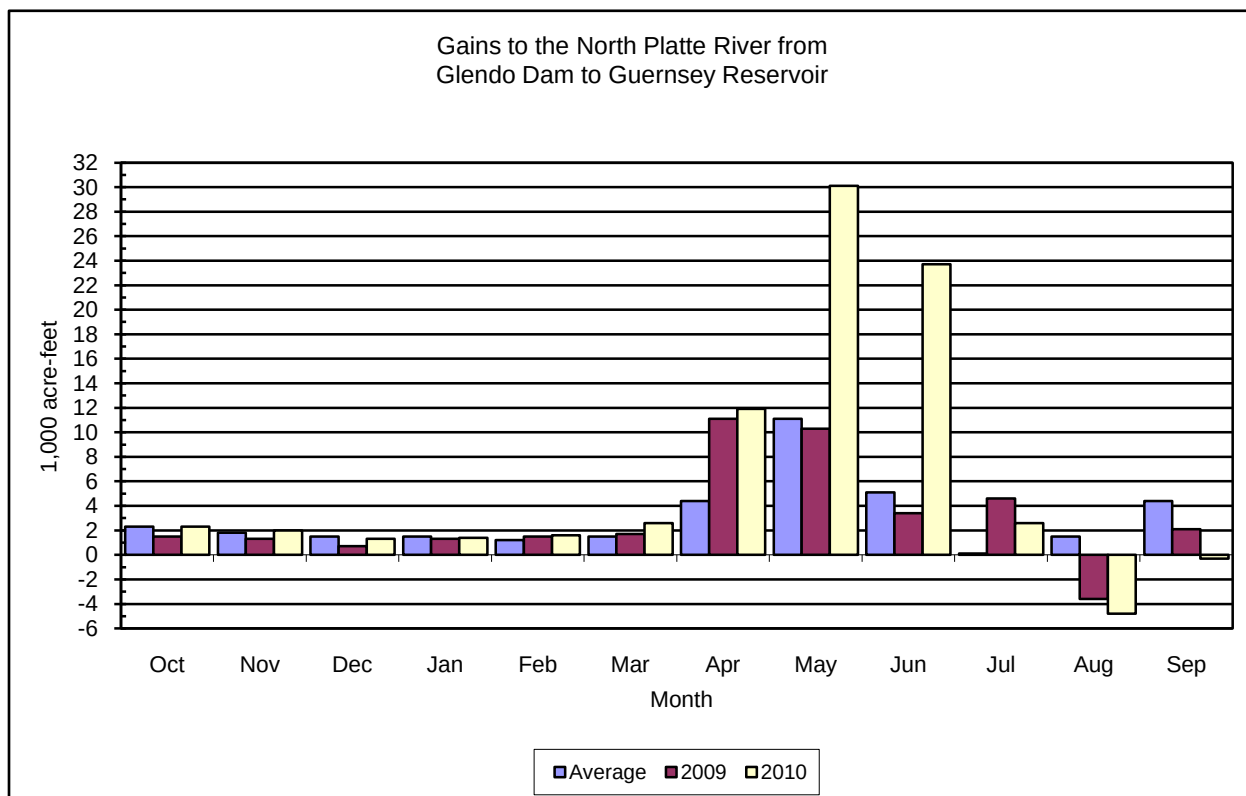


Figure 8 Gains to the North Platte River from Glendo Dam to Guernsey Reservoir

Guernsey Reservoir Storage and Releases

Guernsey Dam located about 25 miles below Glendo Dam, again stores and reregulates the flow of the river prior to delivery of storage water to project lands of the North Platte Project and Glendo Unit. Guernsey Powerplant, located on the right abutment of the dam, has two 3.2 MW electrical generating units with a combined release capability of about 1,340 cfs. The windings of both units have been replaced resulting in the rating of 3.2 MW per unit. The north spillway gate, with a capacity of 50,000 cfs at a reservoir level of 4420 feet, is utilized for irrigation releases to supplement the maximum powerplant releases.

The original capacity of the reservoir was 73,800 AF, but this has been greatly reduced by deposition of silt. Utilizing data from the 1980 Sedimentation Survey of Guernsey Reservoir, the March 1982 - Area Capacity Tables and Curves shows about 45,600 A F of available storage.

At the beginning of water year 2010, storage in Guernsey Reservoir was at 4,480 AF. Releases from Guernsey Reservoir were started on April 15, 2010, as water was moved into the Inland Lakes. The annual "silt run" from the reservoir was canceled due to the need to continue evacuation of water from the Glendo flood pool. At the end of the irrigation season, September 30, 2010, Guernsey Reservoir contained 1,980 AF. See Figure 9 for water year 2010 and water year 2009 storage compared to average.

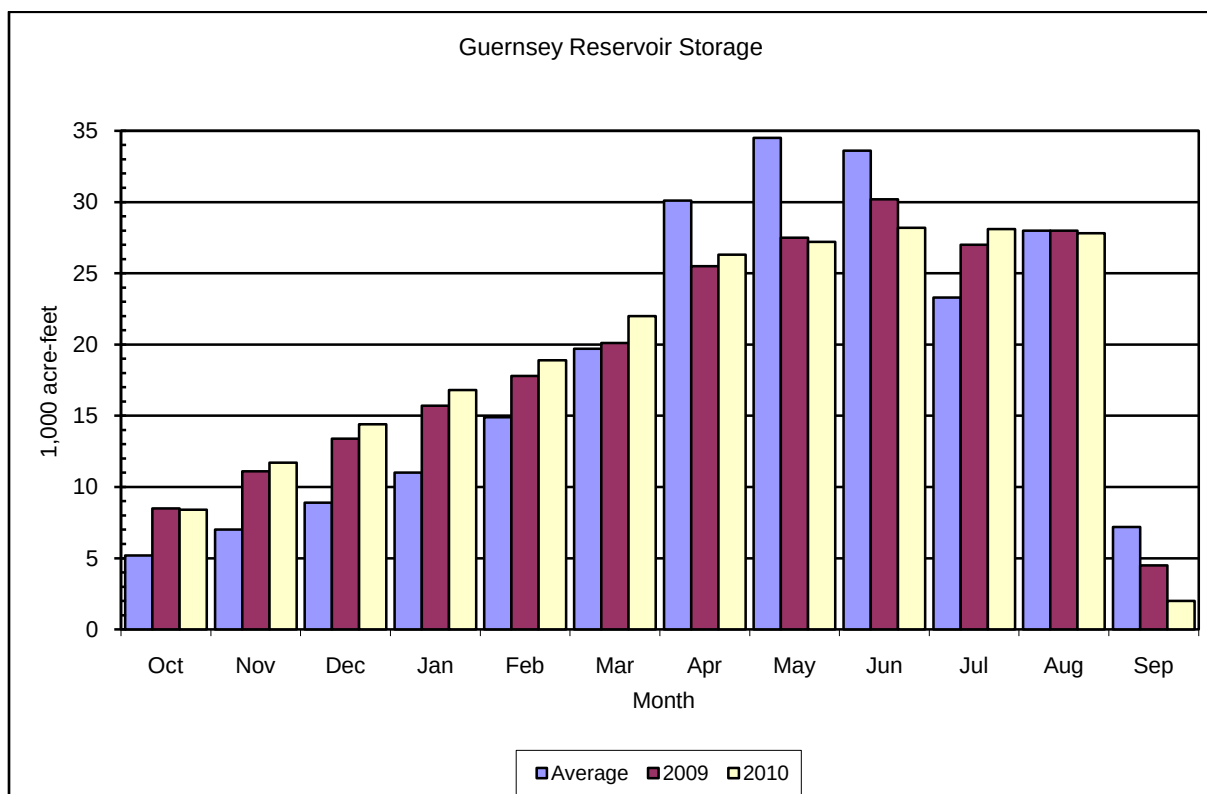


Figure 9 Guernsey Reservoir Storage

Precipitation Summary for Water Year 2010

Although the precipitation was quite variable from month to month throughout the North Platte River Basin, Pathfinder, Glendo, and Guernsey watersheds had above average total precipitation for the water year. Watershed precipitation is an average of the precipitation readings using several stations as indicators for each watershed.

In the Seminoe watershed, precipitation at the Elk Mountain weather station recorded the highest October precipitation since 1980 and no precipitation in September. The Walden weather station recorded the 4th lowest September precipitation since 1938. The Seminoe watershed had an annual total of 98 percent of average precipitation for water year 2010.

In the Pathfinder watershed, the Lander, Wyoming weather station recorded the lowest November precipitation and the 2nd lowest September precipitation in the last 30 years. In the Pathfinder watershed, precipitation at the Pathfinder, Wyoming weather station recorded the highest March precipitation in the last 30 years and the 3rd lowest September precipitation since 1901. The Pathfinder watershed precipitation was over 200 percent of normal in March 2010. The Pathfinder watershed had an annual total of 125 percent of average precipitation for water year 2010.

In the Glendo watershed, precipitation at the Casper, Wyoming weather station recorded the lowest November precipitation in the last 30 years. The Glenrock weather station recorded the lowest September precipitation since 1942. The Glendo watershed precipitation was over 200 percent of normal in March 2010. The Glendo watershed had an annual total of 105 percent of average precipitation for water year 2010. The Pathfinder Dam weather station is used as an indicator in both the Pathfinder and Glendo watersheds.

In the Guernsey watershed, the Glendo Dam, Wyoming, weather station recorded the lowest November precipitation in the last 30 years. The Glendo weather station recorded the 4th lowest September precipitation since 1958. The Guernsey weather station recorded the highest December precipitation since 1945 and the 2nd lowest September precipitation since 1945. The Guernsey watershed precipitation was over 300 percent of normal in December 2009 and over 200 percent of normal in June 2010. The Guernsey watershed had an annual total of 137 percent of average precipitation for water year 2010.

See Figure 10 for a comparison of average, water year 2010, and water year 2009 total precipitation.

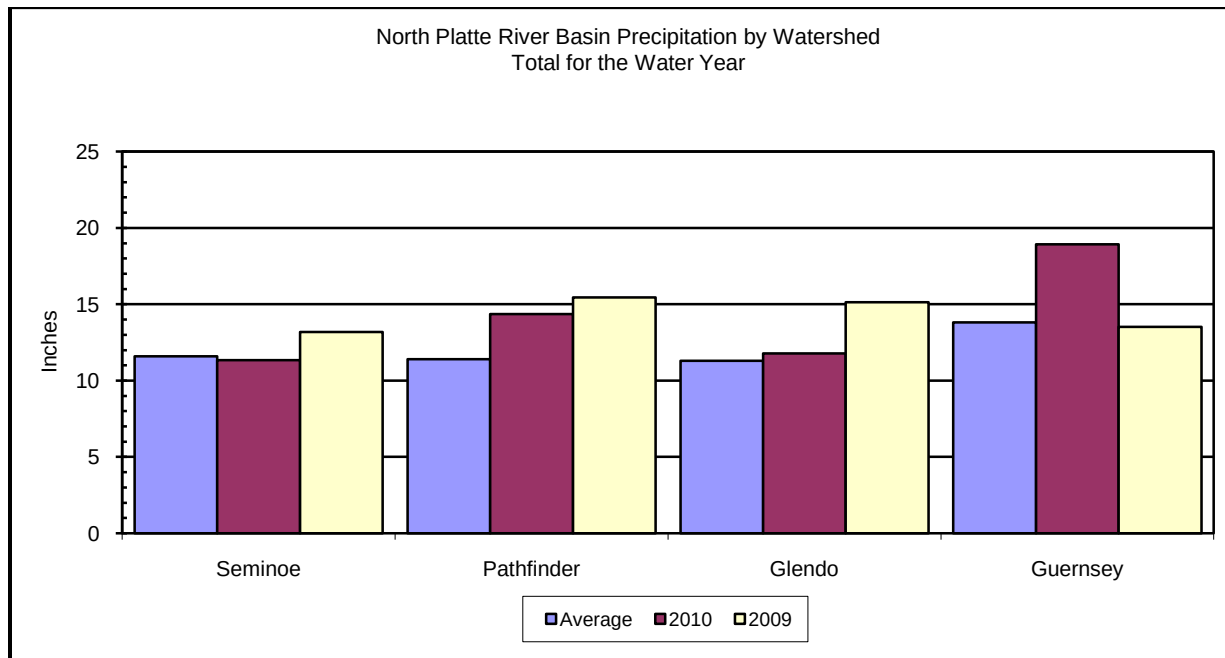


Figure 10 North Platte River Basin Precipitation by Watershed Total for Water Year

Snow pack Summary for Water Year 2010

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. The watershed area above Seminoe Reservoir and the Sweetwater River watershed above Pathfinder Reservoir were below average for February, March, April, and May. The watershed between Alcova Dam and Glendo Reservoir was below average in February and March, but increased above the average in April and May. Table 6 shows a summary of snowpack for water year 2010.

Snow pack SWE for February 1, 2010, was below average at 89 percent for the watershed above Seminoe Reservoir; below average at 63 percent for the Sweetwater River watershed which flows into Pathfinder Reservoir; and below average at 78 percent for the Alcova to Glendo watershed.

Snow pack on March 1, 2010, remained the same with SWE still at 89 percent of average for the watershed above Seminoe Reservoir; decreased to 54 percent of average for the Sweetwater River watershed which flows into Pathfinder Reservoir; and remained at 78 percent of average for the Alcova to Glendo watershed.

Snow pack for April 1, 2010, increased slightly with SWE at 90 percent of average for the watershed above Seminoe Reservoir; increased to 72 percent of average for the Sweetwater River watershed which flows into Pathfinder Reservoir; and increased to 103 percent of average for the Alcova to Glendo watershed.

Snow pack for May 1, 2010, improved with SWE at 94 percent of average for the watershed above Seminoe Reservoir; 86 percent of average for the Sweetwater River watershed which flows into Pathfinder Reservoir; and 113 percent of average for the Alcova to Glendo watershed.

Table 6 North Platte Snowpack Water Content for 2010

Watershed	Feb 1		Mar 1		Apr 1		May 1	
	SWE ¹	% of Avg. ²	SWE ¹	% of Avg. ²	SWE ¹	% of Avg. ²	SWE ¹	% of Avg. ²
Seminoe Reservoir	11.9	89	15.3	89	19.1	90	20.3	94
Pathfinder Reservoir	6.1	63	6.6	54	10.5	72	12.4	86
Glendo Reservoir	5.7	78	7.1	78	12.2	103	12.4	113

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

² Average is based on the 1971-2000 period.

Allocation for Water Year 2010

No allocation of storage water was required in water year 2010. The most consecutive allocation years historically are now 2002, 03, 04, 05, 06, and 2007 with 1953, 54, 55, 56, and 1957 being the second longest consecutive allocation years.

Ownerships for Water Year 2010

Stored water which is held in accounts for various entities is referred to as their ownership. At the beginning of water year 2010, the North Platte Project ownership (includes North Platte Pathfinder and North Platte Guernsey), contained 555,423 AF of water, which is 139 percent of average. The Kendrick ownership contained 1,014,703 AF of water, which is 116 percent of average; and the Glendo ownership contained 121,723 AF of water, which is 98 percent of average. Kendrick, Pathfinder, Glendo, Inland Lakes and Guernsey ownerships filled to their permitted amount during water year 2010.

The Operational Ownership filled in April 2010. This allowed for re-regulation water to be used in evaporation payback. Over 95,000 AF of re-regulation water was used to pay back evaporations to other ownership accounts (See Table 8). The evaporation was able to be paid back because no storage was ordered above Tri-State Dam.

Due to the combined high reservoir storage in the North Platte System, it was decided to transfer 433,500 AF of North Platte and Kendrick Ownership water to the Re-Regulation Account (See Table 8). This amount was determined to satisfy the expected demand for the irrigation season while attaining an end of September system storage target of 2,000,000 AF. As a result of the release from re-regulation, the only storage charged during the year were to temporary Glendo contractors and irrigation districts below Tri-State Dam that wanted to divert more water than their natural flow right.

The total amount of water stored at the end of water year 2010 in the mainstem reservoirs for use in water year 2010 was 2,024,143 AF which was 143 percent of average. This total does not include 34,035 AF of water remaining in the four Inland Lakes in Nebraska.

At the end of water year 2010, the North Platte Project ownership (includes North Platte Pathfinder and North Platte Guernsey), contained 695,254 AF of water which is 174 percent of average. The Glendo ownership contained 175,936 AF of water which is 142 percent of average. The Kendrick ownership contained 1,112,973 AF, which is 127 percent of average and the operational/re-regulation water account contained 29,215 AF. Also stored in the North Platte storage system was 5,488 AF for the city of Cheyenne, 3,277 AF for the Wyoming Water Development Commission, and 2,000 AF for Pacific Power. See Figure 11 for the last 2 water years ownership carryover compared with average. Table 8 shows a summary of ownership for water year 2010.

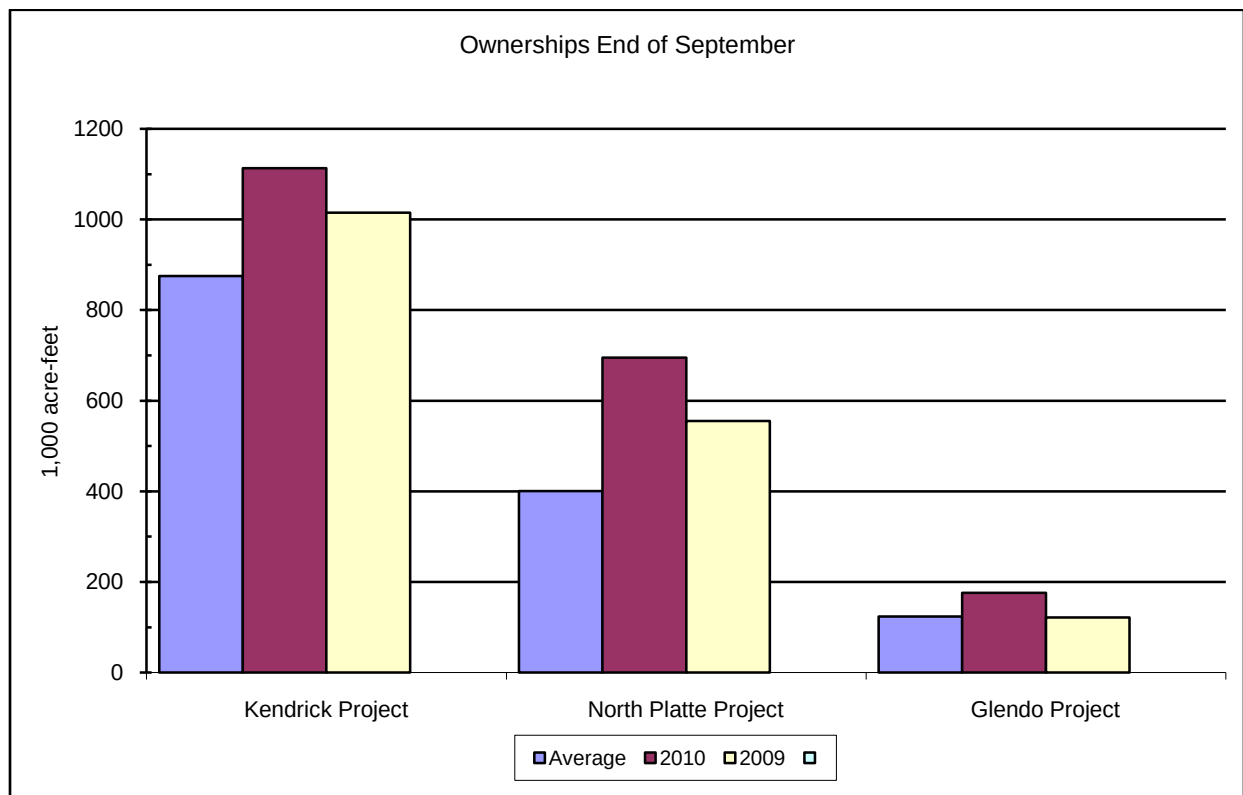


Figure 11 Ownership End of September

North Platte River Forecast 2010

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

Runoff forecasts for the Seminole Reservoir watershed, the Sweetwater River above Pathfinder Reservoir, and the North Platte River from Alcova Dam to Glendo Reservoir are based on snow telemetry (SNOTEL) and/or snow course sites, precipitation sites, and calculated November inflow. 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 water year 2010.

Table 7 Summary of Forecasts of April-July Runoff for Water Year 2010

Forecast Points	Feb 1		Mar 1		Apr 1		May 1		Actual April-July KAF	% of Apr-Jul Avg. ¹
	KAF	% of Avg.	KAF	% of Avg.	KAF	% of Avg.	KAF	% of Avg.		
Seminole Reservoir	500	71	590	84	650	92	800 ²	113	1241.9	176
Sweetwater River	35	57	30	49	40	66	60 ³	98	91.4	86
Alcova to Glendo	100	80	90	72	120	96	190 ⁴	152	303.8	243

¹ Average is based on the 1980-2009 period.

² The May 1 forecast includes an actual April inflow of 154,400 AF.

³ The May 1 forecast includes an actual April inflow of 24,200 AF.

⁴ The May 1 forecast includes an actual April inflow of 84,900 AF.

Table 8 Summary of North Platte River System Ownership for Water Year 2010

Summary of North Platte River Systems Ownerships for Water Year 2010 (Acre-Feet)

Months	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
Pathfinder Ownership														
Evaporation		-2,346	-1,184	-2,148	-579	-1,286	-910	-6,817	-6,881	-9,875	-12,490	-9,522	-8,169	-62,207
Accural		45,556	38,843	28,099	30,210	31,016	58,651	183,556	62,080	0	0	0	0	478,011
B/ Delivery			0	0	0	0	0	0	0	0	0	-2,072	-198	-2,270
A/ PP&L payback		0	0	0	0	0	0	0	806	254	0	0	0	1,060
E/ Evaporation payback										14,039	12,490	4,981		31,510
F/ Re-Regulation transfer												-312,927	6,654	-306,273
Ownership total	555,423	598,633	636,292	662,243	691,874	721,604	779,345	956,084	1,012,089	1,016,507	1,016,507	696,967	695,254	
Kendrick Ownership														
Evaporation		-2,992	-1,564	-2,767	-720	-1,541	-1,044	-6,654	-5,352	-9,161	-11,016	-9,937	-8,526	-61,274
Accural		0	0	0	0	0	0	0	190,140	0	0	0	0	190,140
B/ Delivery		0	0	0	0	0	0	0	0	0	0	0	0	0
E/ Evaporation payback										28,630	11,016	4,758		44,404
F/ Re-Regulation transfer												-75,000		-75,000
Ownership total	1,014,703	1,011,711	1,010,147	1,007,380	1,006,660	1,005,119	1,004,075	997,421	1,182,209	1,201,678	1,201,678	1,121,499	1,112,973	
Glendo Ownership														
Evaporation		-883	-359	-173	-254	-97	-948	-1,340	-2,593	-2,317	-3,084	-3,282	-2,333	-17,663
Accural		0	0	0	0	0	2,683	58,832	0	0	0	0	0	61,515
B/ Delivery		0	0	0	0	0	0	0	0	-3	0	-972	-2,454	-3,429
E/ Evaporation payback								3,487	3,160	2,317	3,084	1,742		13,790
Ownership total	121,723	120,840	120,481	120,308	120,054	119,957	121,692	182,671	183,238	183,235	183,235	180,723	175,936	
Guernsey Ownership														
Evaporation		0	0	0	-32	-54	-294	-667	-848	-988	-1,223	-588	0	-4,694
Accural		0	0	6,844	14,749	10,440	13,742	0	0	0	0	0	0	45,775
B/ Delivery		0	0	0	0	0	0	0	0	0	0	0	0	0
E/ Evaporation payback								766	966	988	1,223	549		4,492
F/ Re-Regulation transfer												-45,573		-45,573
Ownership total	0	0	0	6,844	21,561	31,947	45,395	45,494	45,612	45,612	45,612	0	0	
Inland Lakes														
Evaporation		-21	-46	-31	-32	-27	-90	-218	-25	0	0	0	0	-490
Accural		11,893	12,615	0	0	0	0	21,705	0	0	0	0	0	46,213
C/ Delivery		0	0	0	0	0	0	-27,749	-17,974	0	0	0	0	-45,723
Ownership total	0	11,872	24,441	24,410	24,378	24,351	24,261	17,999	0	0	0	0	0	

Table 8 (Continued) Summary of North Platte River System Ownership for Water Year 2010

Summary of North Platte River Systems Ownerships for Water Year 2010 (Acre-Feet)

Months	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
City of Cheyenne														
Evaporation		-3	-4	-10	0	-5	-2	-50	-43	-21	-28	-29	-35	-230
Accrual		703	574	498	597	653	689	1,492	1,343	1,225	1,095	1,111	1,780	11,760
Delivery		-457	-166	-129	-205	-303	-172	-382	-3,057	-4,407	-96	-189	-271	-9,834
Ownership total	3,792	4,035	4,439	4,798	5,190	5,535	6,050	7,110	5,353	2,150	3,121	4,014	5,488	
Pacific Corp (PP&L)														
Evaporation		-6	-1	0	0	0	-5	-13	0	0	-13	-27	-29	-94
Accrual		0	0	0	0	0	0	0	456	486	558	558	36	2,094
Delivery		0	0	0	0	0	0	0	-2,000	0	0	0	0	-2,000
Ownership total	2,000	1,994	1,993	1,993	1,993	1,993	1,988	1,975	431	917	1,462	1,993	2,000	
Sold water to WWDC														
WWDC Ownership														
Evaporation		0	0	0	0	0	0	-2	-34	-37	-45	-48	-34	-200
Accrual		0	0	0	0	0	0	1,955	2,093	0	0	0	0	4,048
Delivery		0	0	0	0	0	0	0	0	-52	-173	-234	-112	-571
Ownership total	0			0	0	0	0	1,953	4,012	3,923	3,705	3,423	3,277	
Operational Ownership														
Evaporation		-11	-2	0	0	0	-10	-60	-254	-283	-348	-345	-240	-1,553
Accrual		0	0	0	0	0	449	11,893	0	0	0	0	0	12,342
Delivery		0	0	0	0	0	0	0	0	0	0	0	0	0
Evaporation payback									254	283	348	159		1,044
Ownership total	2,741	2,730	2,728	2,728	2,728	2,728	3,167	15,000	15,000	15,000	15,000	14,814	14,574	
Re-Regulation Water														
Evaporation		0	0	0	0	0	0	0	-278	-3,074	-3,964	-2,371	-799	-10,486
Accrual		0	0	0	0	0	0	4,253	61,615	530,635	0	0	14,681	611,184
Delivery		0	0	0	0	0	0	0	-17,245	-4,111	-294,412	-390,394	-211,501	-917,663
Evaporation Payback								-4,253	-4,380	-46,257	-28,161	-12,189		-95,240
Re-Regulation Transfer											433,500	-6,654		426,846
Ownership total	0	0	0	0	0	0	0	0	39,712	516,905	190,368	218,914	14,641	

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, 2010 until June 10, 2010, when the last 20 AF of the exchange was returned.

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

C/ Transfer refers to Inland Lakes ownership water which was delivered from storage in Glendo or Guernsey Reservoirs. In April and May, 45,723 AF was transferred to the Inland Lakes.

D/ Wyoming Water Development Commission (WWDC) contracted with the Bureau of Reclamation for storage space of 7,000 AF in Glendo Reservoir for a one year period to store non-project water for irrigation purposes.

E/ Evaporations in the Kendrick, Pathfinder, Glendo, and Guernsey Ownerships were paid back using Re-Regulation water.

F/ 433,500 AF of North Platte and Kendrick Ownership water was transferred to the Re-Regulation Account to meet anticipated irrigation demands and to help meet an end of year storage target of 2,000,000 AF.

Table 9 Actual Reservoir Operations for Water Year 2010

NORTH PLATTE RIVER OPERATING PLAN Year Beginning Oct 2009													
HYDROLOGY OPERATIONS													

Seminole Reservoir Operations													

		Initial Content 684.7 Kaf					Operating Limits: Max 1017.3 Kaf, 6357.00 Ft. Min 31.7 Kaf, 6239.02 Ft.						
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Total Inflow	kaf	38.8	40.1	25.8	29.4	27.2	48.9	154.4	293.9	672.2	121.4	41.7	18.8
Total Inflow	cfs	631.	673.	419.	478.	489.	796.	2595.	4780.	11297.	1974.	678.	316.
Turbine Release	kaf	33.3	32.4	33.2	33.0	30.3	32.8	112.5	186.5	237.9	136.3	95.0	56.6
Jetflow Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	4.1	0.0	0.0	0.0
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.7	229.7	17.3	0.0	0.0
Total Release	kaf	33.3	32.4	33.2	33.0	30.3	32.8	112.5	213.2	471.7	153.6	95.0	56.6
Total Release	cfs	541.	544.	540.	536.	545.	533.	1890.	3467.	7928.	2498.	1545.	951.
Evaporation	kaf	2.1	2.6	0.6	0.5	1.1	3.2	2.5	4.3	7.4	9.5	8.2	6.8
End-month content	kaf	688.1	693.2	685.2	681.0	676.8	689.8	729.2	805.7	998.7	957.0	895.5	850.9
End-month elevation	ft	6338.2	6338.5	6338.0	6337.7	6337.4	6338.3	6340.9	6345.6	6356.1	6354.0	6350.7	6348.2
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	33.3	32.4	33.2	33.0	30.3	32.8	112.5	213.2	471.7	153.6	95.0	56.6
Total Inflow	cfs	541.	544.	540.	536.	545.	533.	1890.	3467.	7928.	2498.	1545.	951.
Turbine Release	kaf	32.2	31.5	32.8	33.0	29.6	32.7	111.4	152.1	182.2	118.8	95.0	56.3
Spillway Release	kaf	1.1	0.8	0.4	0.0	0.7	0.0	1.1	60.7	289.5	35.1	0.0	0.3
Total Release	kaf	33.3	32.3	33.2	33.0	30.3	32.7	112.5	212.8	471.7	153.9	95.0	56.6
Total Release	cfs	541.	544.	540.	536.	545.	532.	1890.	3461.	7927.	2503.	1545.	950.
Pathfinder Reservoir Operations													

		Initial Content 700.3 Kaf					Operating Limits: Max 1016.5 Kaf, 5850.10 Ft. Min 31.4 Kaf, 5746.00 Ft.						
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Sweetwater Inflow	kaf	3.9	3.7	2.5	2.8	1.7	5.1	24.2	20.7	36.6	9.9	4.2	1.9
Kortes-Path Gain	kaf	-1.2	-2.4	-1.9	-0.8	1.2	8.6	4.6	2.0	-25.1	-1.1	-4.5	-2.2
Inflow from Kortes	kaf	33.2	32.3	33.2	33.0	30.3	32.7	112.5	212.8	471.7	153.9	95.0	56.6
Total Inflow	kaf	35.9	33.6	33.8	35.0	33.2	46.4	141.3	235.5	483.2	162.7	94.7	56.3
Total Inflow	cfs	584.	564.	550.	569.	597.	754.	2374.	3831.	8120.	2645.	1540.	946.
Turbine Release	kaf	7.3	22.2	25.8	26.3	23.7	37.4	70.0	98.0	142.9	134.5	141.4	97.8
Jetflow Release	kaf	4.5	4.5	4.6	4.6	4.1	4.7	4.6	18.6	82.7	99.4	57.3	14.0
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	103.3	51.2	0.0	0.0
Total Release	kaf	11.8	26.7	30.4	30.9	27.8	42.1	74.6	116.6	328.9	285.1	198.7	111.8
Total Release	cfs	192.	449.	495.	502.	501.	684.	1254.	1896.	5527.	4637.	3232.	1879.
Evaporation	kaf	2.6	3.1	0.7	0.6	1.3	3.8	3.8	6.5	10.0	12.2	9.7	8.5
End-month content	kaf	721.9	725.7	728.4	731.9	735.9	736.4	799.3	911.8	1056.1	921.4	807.7	743.6
End-month elevation	ft	5835.1	5835.3	5835.5	5835.7	5835.9	5835.9	5839.4	5845.2	5851.9	5845.6	5839.9	5836.4
Alcova Reservoir Operations													

		Initial Content 179.5 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	11.8	26.7	30.4	30.9	27.8	42.1	74.6	116.6	328.9	285.1	198.7	111.8
Total Inflow	cfs	192	449	495	502	501	684	1254	1896	5527	4637	3232	1879
Turbine Release	kaf	30.8	29.8	31.0	30.7	27.3	40.1	51.9	111.7	192.9	185.6	180.4	97.6
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	123.6	79.5	0.0	0.0
Casper Canal Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	11.5	18.1	17.6	12.3
Total Release	kaf	30.8	29.8	31.0	30.7	27.3	40.1	51.9	115.8	328.0	283.2	198.0	109.9
Total Release	cfs	501.	502.	503.	500.	492.	652.	872.	1883.	5512.	4605.	3221.	1847.
Evaporation	kaf	0.4	0.4	0.1	0.1	0.2	0.5	0.5	0.8	1.1	1.4	1.2	1.2
End-month content	kaf	160.1	156.5	155.9	156.0	156.3	157.8	180.0	180.0	179.7	180.3	179.8	180.5
End-month elevation	ft	5489.8	5488.2	5487.9	5488.0	5488.1	5488.8	5498.2	5498.2	5498.1	5498.3	5498.1	5498.4

Table 9 (Continued) Actual Reservoir Operations for Water Year 2010

NORTH PLATTE RIVER OPERATING PLAN Year Beginning Oct 2009														
Gray Reef Reservoir Operations		Initial Content				1.5 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	30.8	29.8	31.0	30.7	27.3	40.2	51.9	111.7	316.5	265.1	180.4	97.6	
Total Inflow	cfs	501.	502.	503.	500.	492.	653.	872.	1817.	5320.	4311.	2934.	1640.	
Total Release	kaf	30.8	29.8	30.8	30.8	27.8	39.6	52.1	111.7	316.1	265.0	180.3	97.5	
Total Release	cfs	501.	500.	500.	501.	501.	643.	876.	1817.	5312.	4309.	2933.	1639.	
Glendo Reservoir Operations		Initial Content				125.2 Kaf		Operating Limits:			Max	789.4 Kaf,	4653.00 Ft.	
-----		-----				-----		-----			Min	63.2 Kaf,	4570.02 Ft.	
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Alcova-Glendo Gain	kaf	9.7	10.8	6.0	14.0	9.8	15.2	84.9	132.0	72.9	14.0	11.3	15.2	
Infl from Gray Reef	kaf	34.8	31.1	29.3	30.0	29.1	41.9	49.9	95.1	302.2	275.4	184.4	102.6	
Total Inflow	kaf	44.5	41.9	35.3	44.0	38.9	57.1	134.8	227.1	375.1	289.4	195.7	117.8	
Total Inflow	cfs	724.	704.	574.	715.	700.	928.	2265.	3693.	6303.	4707.	3183.	1980.	
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	19.0	147.8	170.5	207.5	232.7	140.2	
Low Flow Release	kaf	1.8	1.5	1.9	1.7	1.5	1.6	1.9	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	1.3	36.7	221.5	198.0	57.6	
Total Release	kaf	1.8	1.5	1.9	1.7	1.5	1.6	20.9	150.6	208.7	430.5	432.2	199.3	
Total Release	cfs	30.	26.	31.	28.	26.	27.	351.	2449.	3508.	7002.	7030.	3350.	
Evaporation	kaf	0.7	0.4	0.2	0.3	0.3	1.2	2.8	4.6	6.5	7.9	5.7	3.0	
End-month content	kaf	167.2	207.2	240.3	282.3	319.5	373.6	484.8	556.6	716.5	567.4	325.2	240.8	
End-month elevation	ft	4594.3	4600.7	4605.5	4611.1	4615.6	4621.6	4632.3	4638.1	4648.8	4638.9	4616.3	4605.6	
Guernsey Reservoir Operations		Initial Content				4.5 Kaf		Operating Limits:			Max	45.6 Kaf,	4419.99 Ft.	
-----		-----				-----		-----			Min	0.0 Kaf,	4370.00 Ft.	
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	
-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
Glendo-Guerns Gain	kaf	2.3	2.0	1.3	1.4	1.6	2.6	11.9	30.1	23.7	2.6	-4.8	-0.3	
Inflow from Glendo	kaf	1.9	1.5	1.9	1.7	1.4	1.6	20.9	150.6	208.7	430.6	432.2	199.3	
Total Inflow	kaf	4.2	3.5	3.2	3.1	3.0	4.2	32.8	180.7	232.4	433.2	427.4	199.0	
Total Inflow	cfs	68.	59.	52.	51.	55.	69.	551.	2939.	3905.	7044.	6951.	3344.	
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	27.2	64.3	62.3	63.4	61.8	25.3	
Seepage	kaf	0.1	0.1	0.5	0.7	0.9	0.9	0.7	0.7	0.7	0.7	0.5	0.1	
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	114.2	167.6	368.1	364.5	199.0	
Total Release	kaf	0.1	0.1	0.5	0.7	0.9	0.9	27.9	179.2	230.6	432.2	426.8	224.4	
Total Release	cfs	2.	2.	8.	11.	17.	15.	469.	2914.	3874.	7029.	6941.	3771.	
Evaporation	kaf	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.7	0.8	1.0	0.9	0.4	
End-month content	kaf	8.4	11.7	14.4	16.8	18.9	22.0	26.3	27.2	28.2	28.1	27.8	2.0	
End-month elevation	ft	4398.7	4401.8	4403.9	4405.5	4406.9	4408.7	4411.0	4411.5	4412.0	4412.0	4411.8	4387.9	

Flood Benefits for Water Year 2010

Because of the existence of dams on the North Platte River, The Corps of Engineers, Omaha District, estimates that in water year 2010 flood damages of \$7,842,300 were prevented. Table 10 is a breakdown of flood damage prevented by Dams.

Table 10 Flood Damage Prevented by Dams for Water Year 2010 (on the North Platte River Basin System)

DAMS	WATER YEAR 2010	PRIOR TO 2010 ²	ACCUMULATED TOTAL ¹
SEMINOE	\$1,925,500	\$31,788,300	\$33,713,800
PATHFINDER	\$3,547,200	\$9,624,800	\$13,172,000
ALCOVA	\$214,800	\$548,400	\$763,200
GLENDO	\$2,154,800	\$83,738,200	\$85,893,000
GUERNSEY	\$0	\$434,000	\$434,000
TOTAL	\$7,842,300	\$126,133,700	\$133,973,000

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

² The period of assessment is 1970 through 2010 except for Glendo Dam, which is 1965 through 2010.

Generation for Water Year 2010

Power generation was above average for all powerplants on the North Platte River Basin in water year 2010. See Table 11 for a breakdown of generation by powerplant.

Table 11 Power Generation Water Year 2010

Powerplant	Gross generation ¹ (GWh)	Percent of Average ²
Seminole	155.3	118
Kortes	150.7	107
Fremont Canyon	243.4	106
Alcova	133.5	117
Glendo	101.1	129
Guernsey	21.0	114
Total Basin	805.0	113

¹ Generation is reported in giga-watt hours (GWh).

² 30 year average (1980-2009)

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 ² Installed Capacity (kw)	Normal Operating Head (feet)	Output At rated Head (cfs)	30 year Average ¹ (GWh)
Seminole	3	17,000	51,000	97-227	4,050	131.9
Kortes	3	12,000	36,000	192-204	2,910	140.6
Fremont Canyon	2	33,400	66,800	247-363	3,080	228.7
Alcova	2	19,500	39,000	153-165	4,100	114.1
Glendo	2	19,000	38,000	73-156	3,400	78.6
Guernsey	2	3,200	6,400	89-91	1,340	18.4
Total	14	---	237,200	---	---	712.3

¹ 1980-2009

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

Glossary

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

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

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

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

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

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

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

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

Giga Wattt 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 - October 1 through September 30.

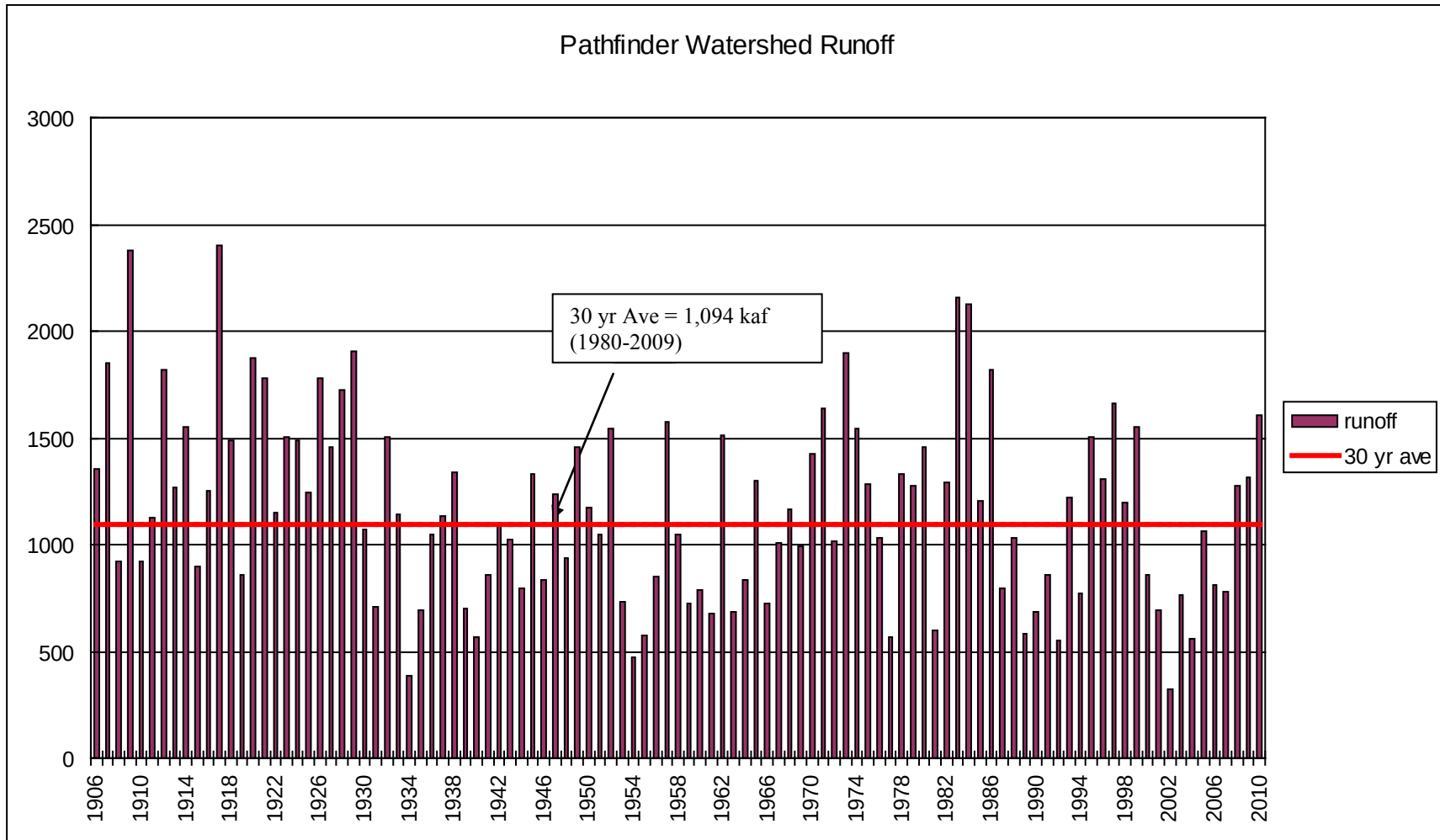


Figure 20 Pathfinder Watershed Runoff 1906-2010

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 these data the following standard definitions of water surface elevations and reservoir capacities shall be used.

B. Water Surface Elevation Definitions:

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

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

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

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

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

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

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

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

C. Capacity Definitions:

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

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

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

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

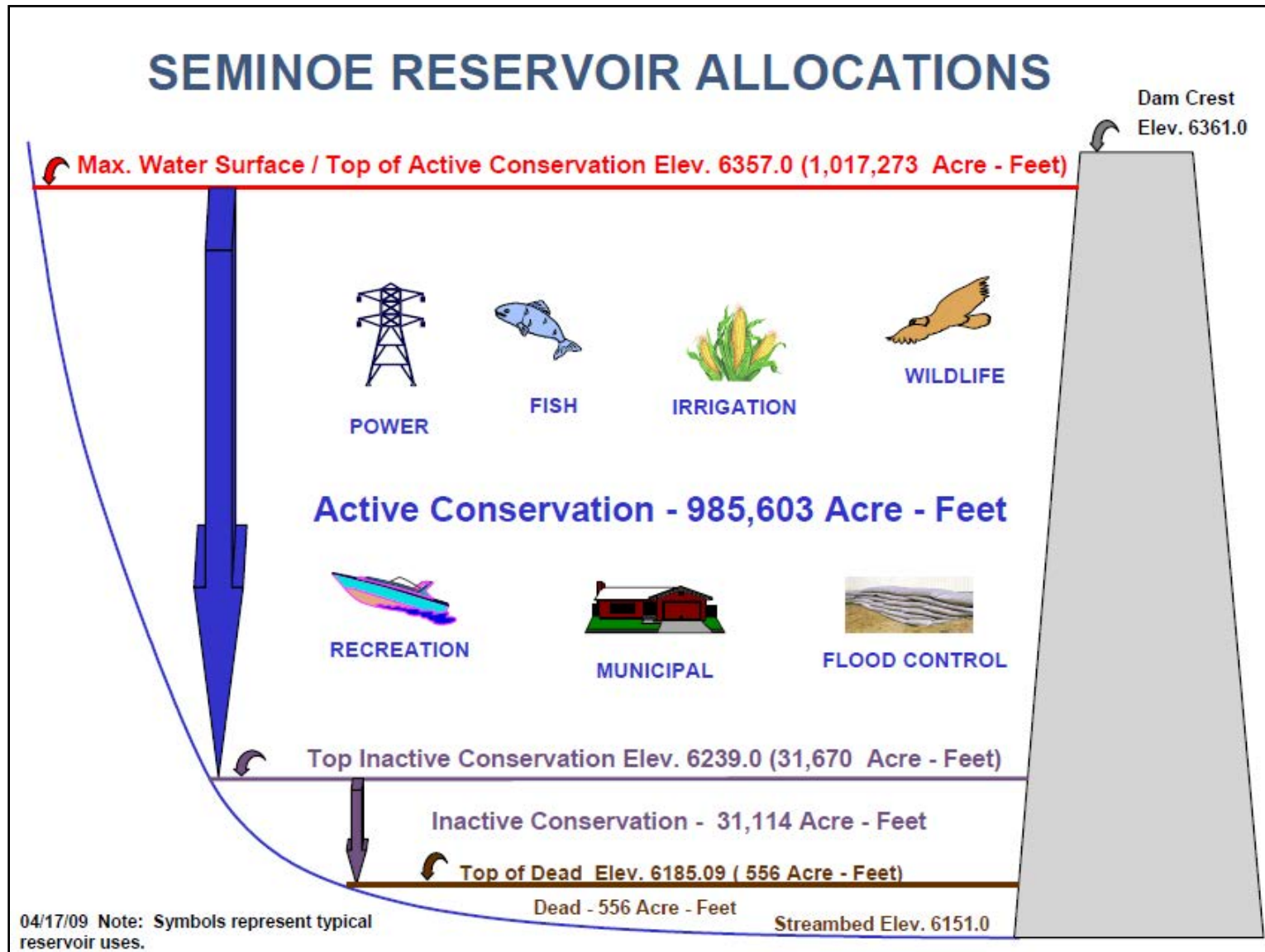
Active Capacity - the reservoir capacity normally usable for storage and regulation of reservoir inflows to meet established reservoir operating requirements. Active capacity extends from the highest of the top of exclusive flood control capacity, the top of joint use capacity, or the top of active conservation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

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

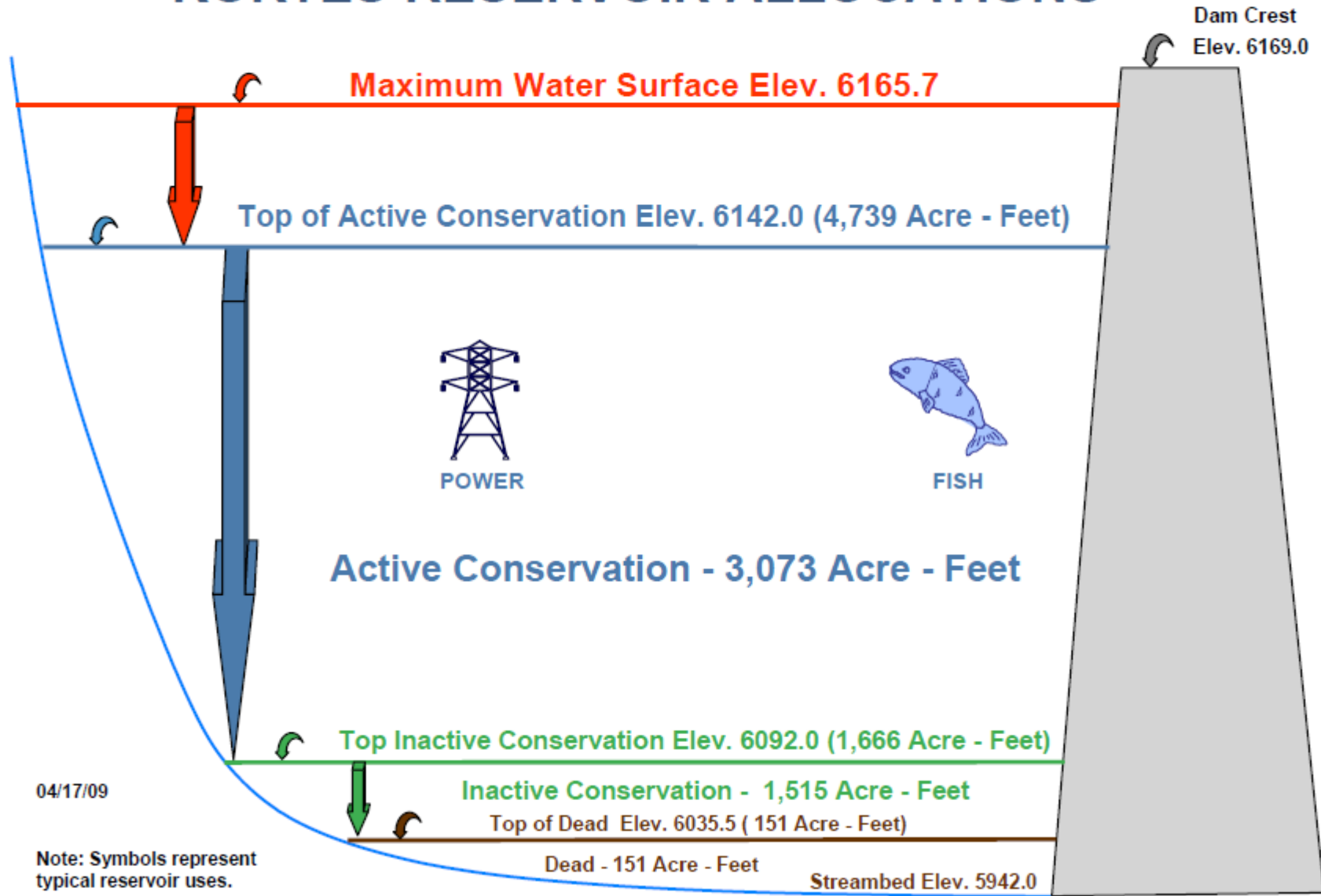
Joint Use Capacity - the reservoir capacity assigned to flood control purposes during certain periods of the year and to conservation purposes during other periods of the year.

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

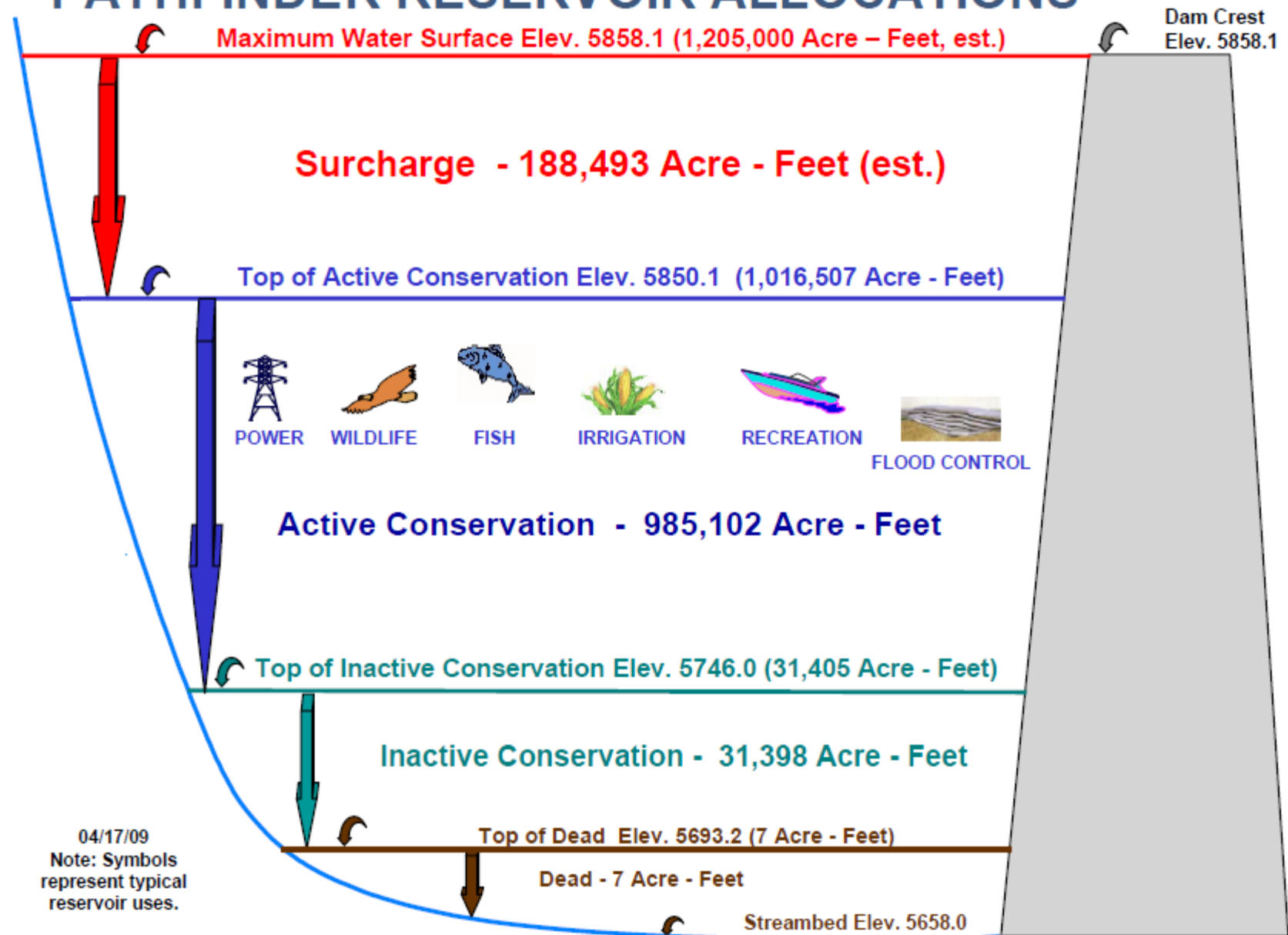
Reservoir Allocation Sheets



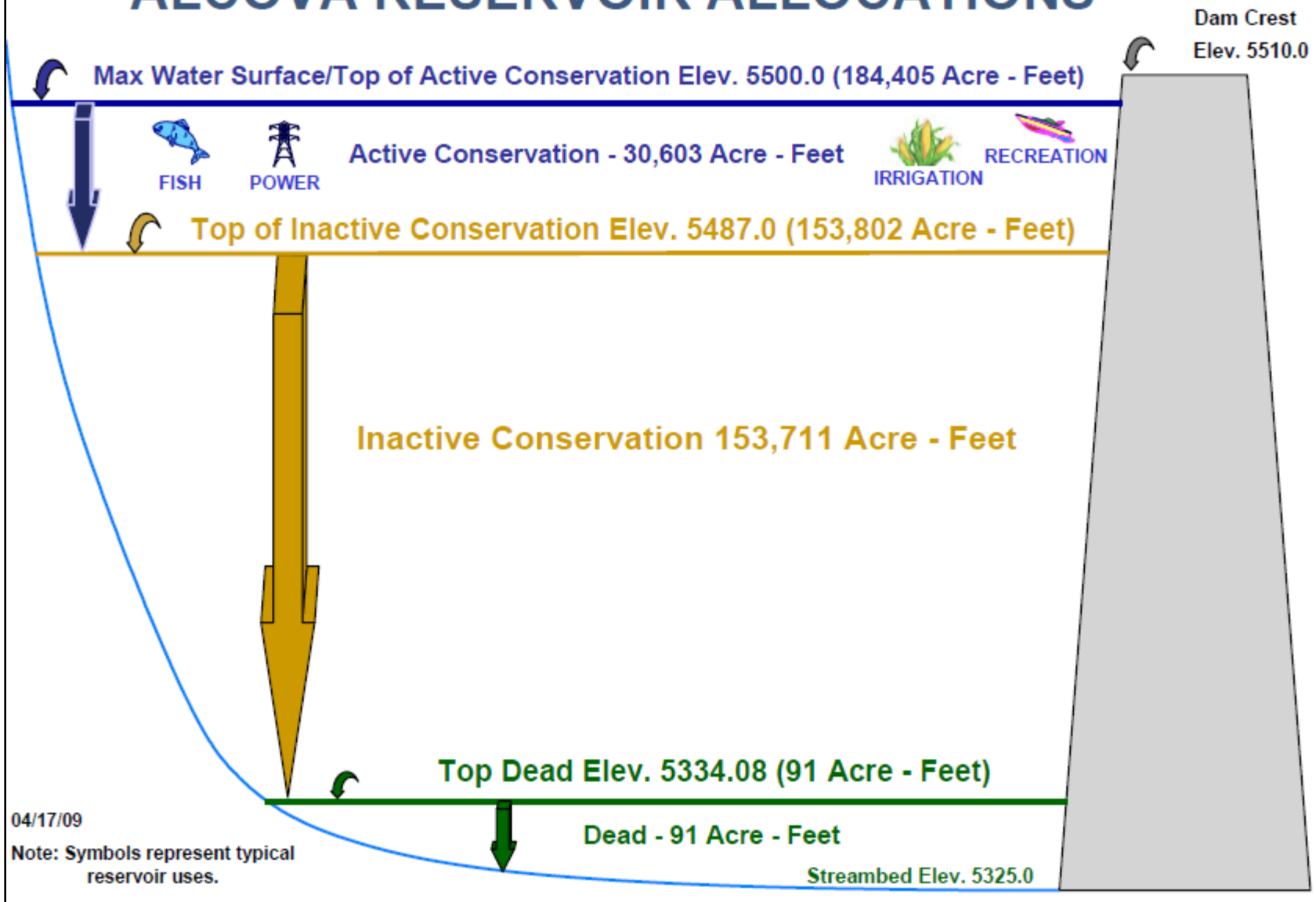
KORTES RESERVOIR ALLOCATIONS



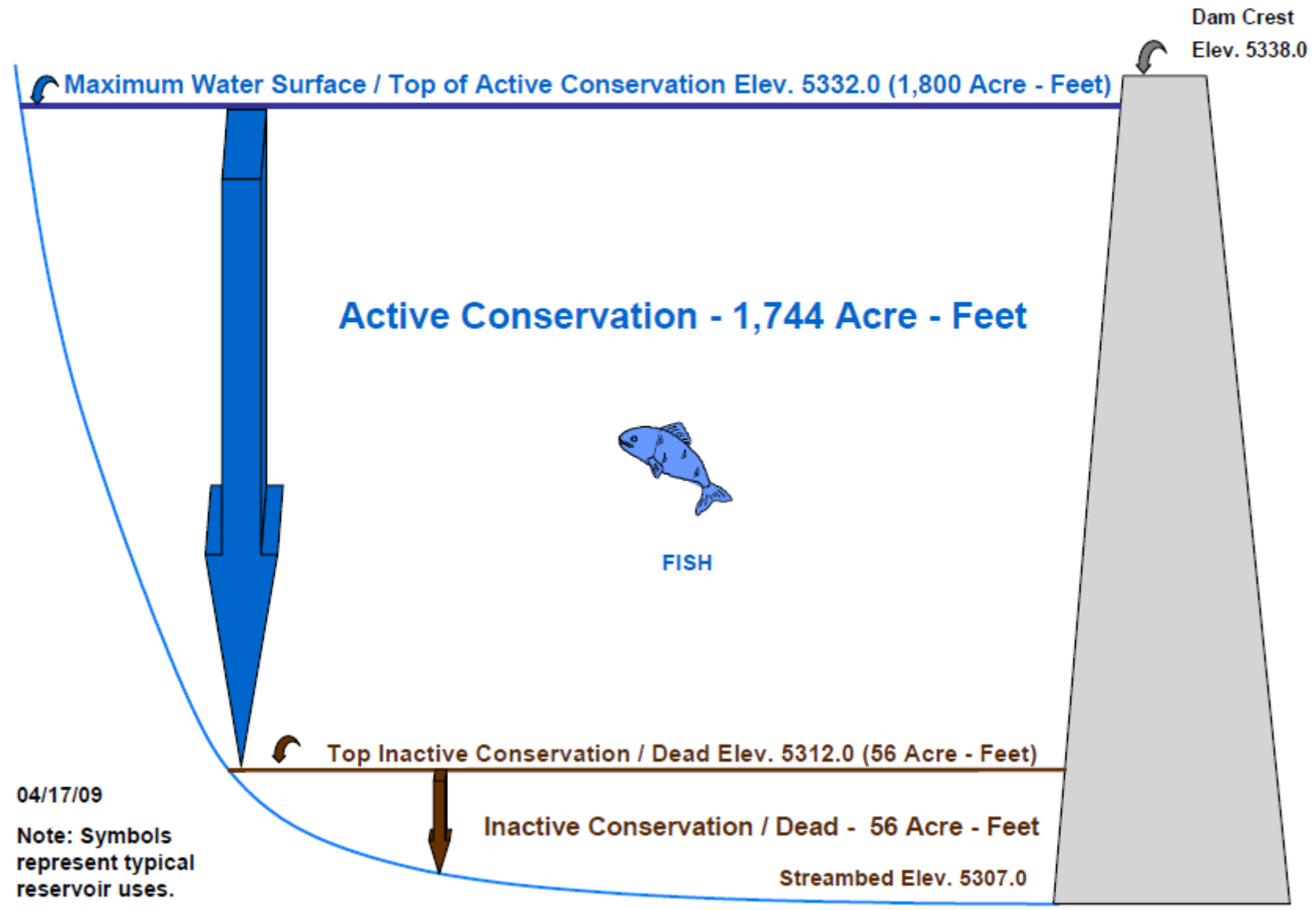
PATHFINDER RESERVOIR ALLOCATIONS



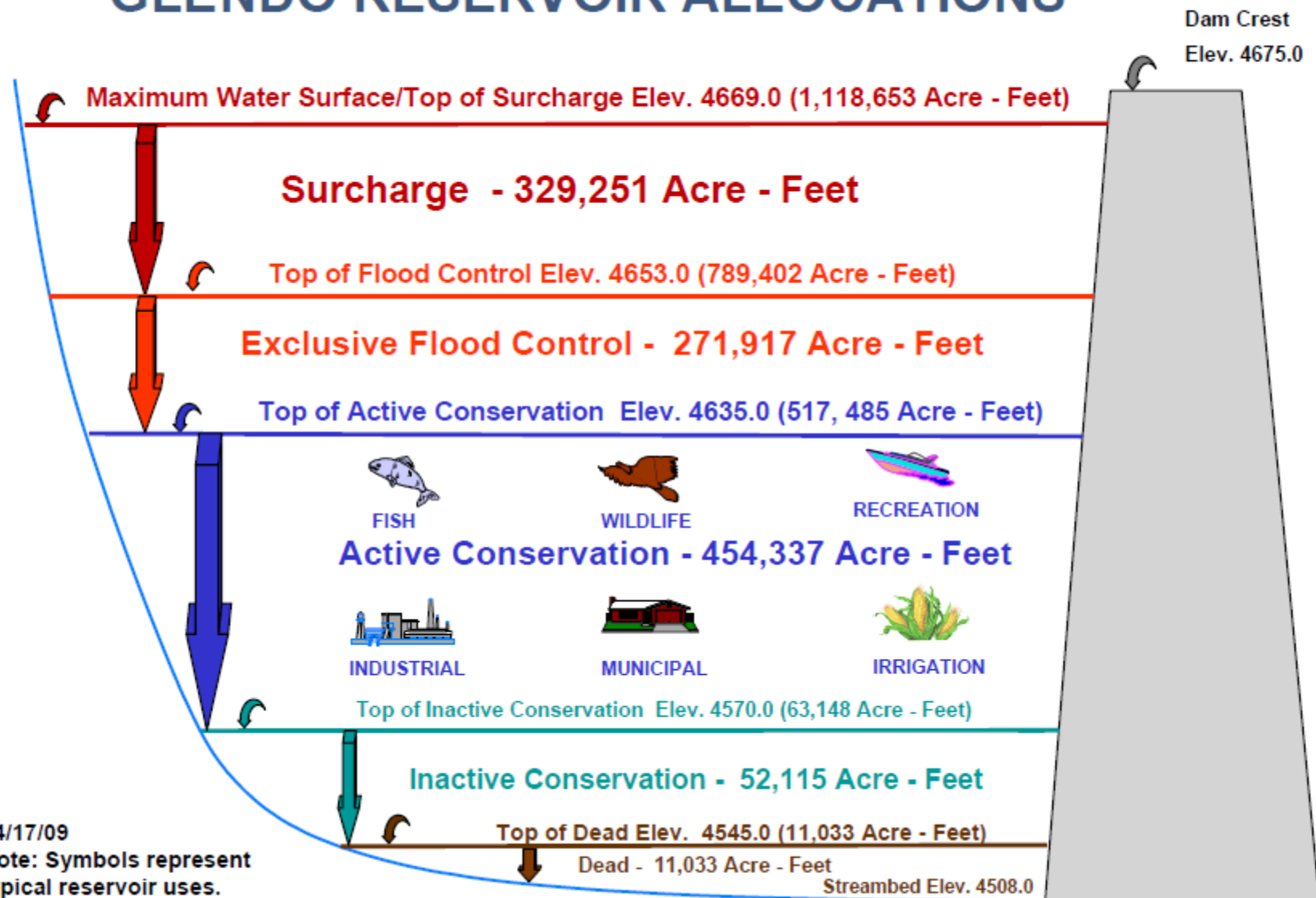
ALCOVA RESERVOIR ALLOCATIONS



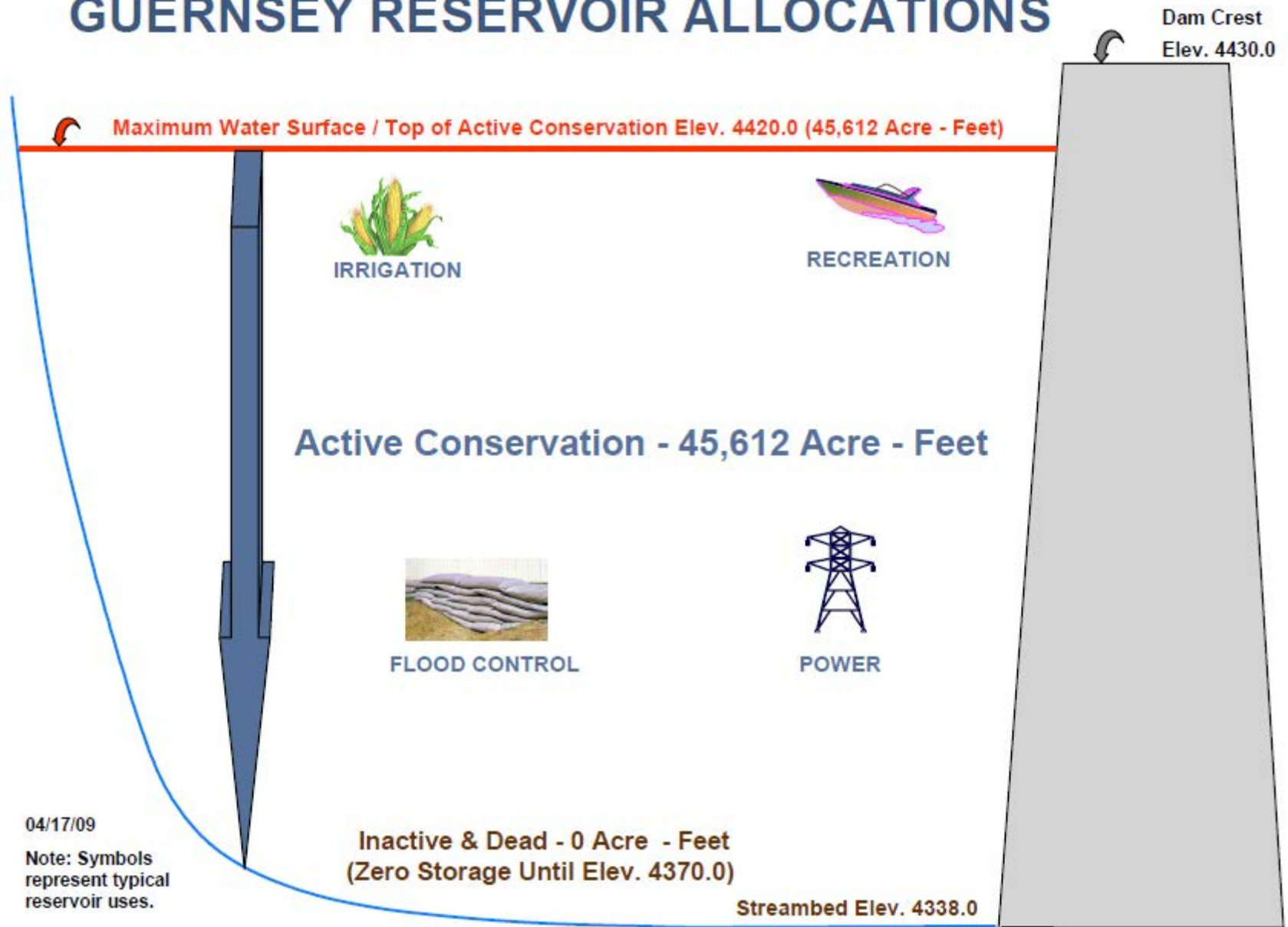
GRAY REEF RESERVOIR ALLOCATIONS



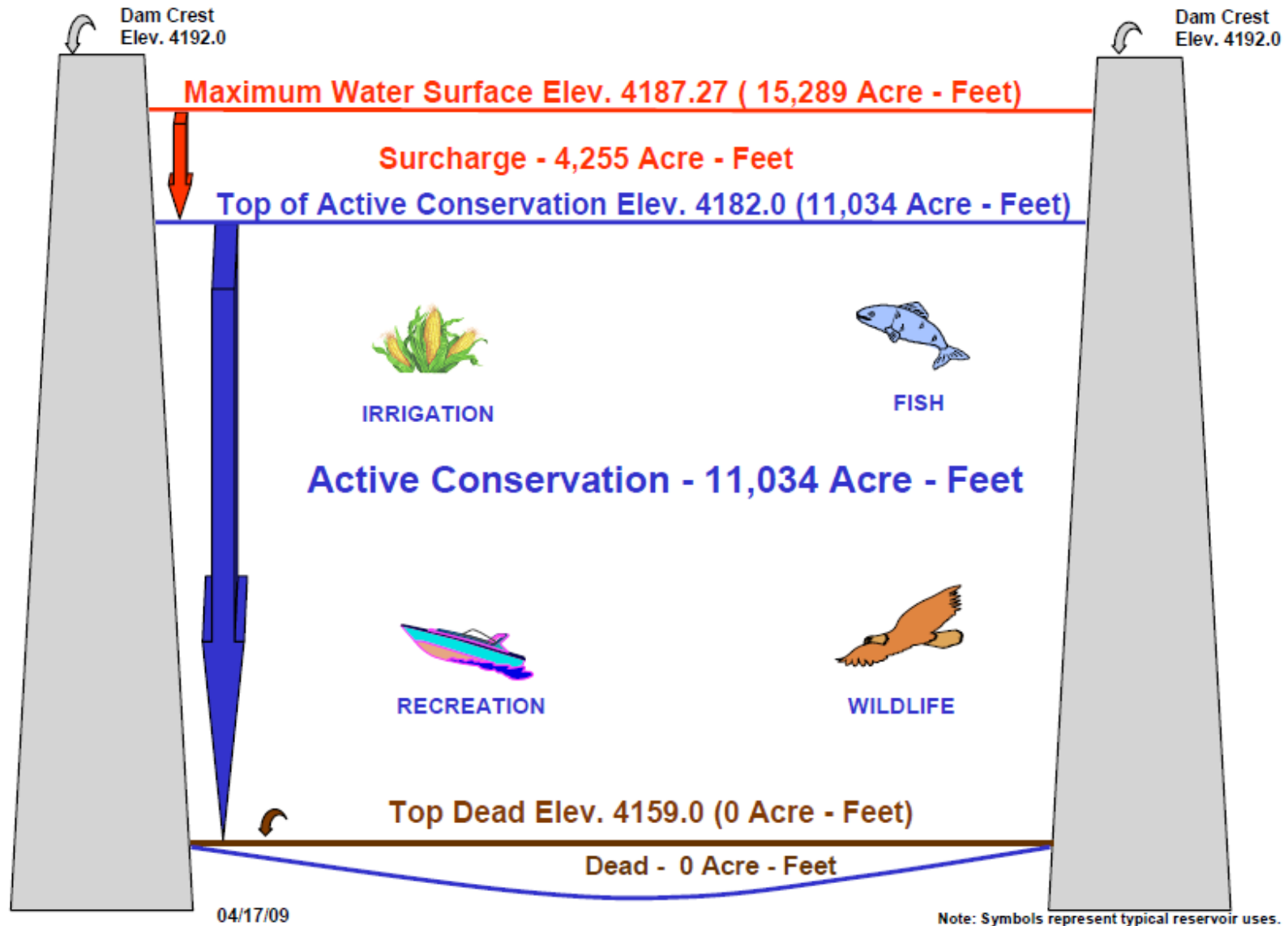
GLENDO RESERVOIR ALLOCATIONS



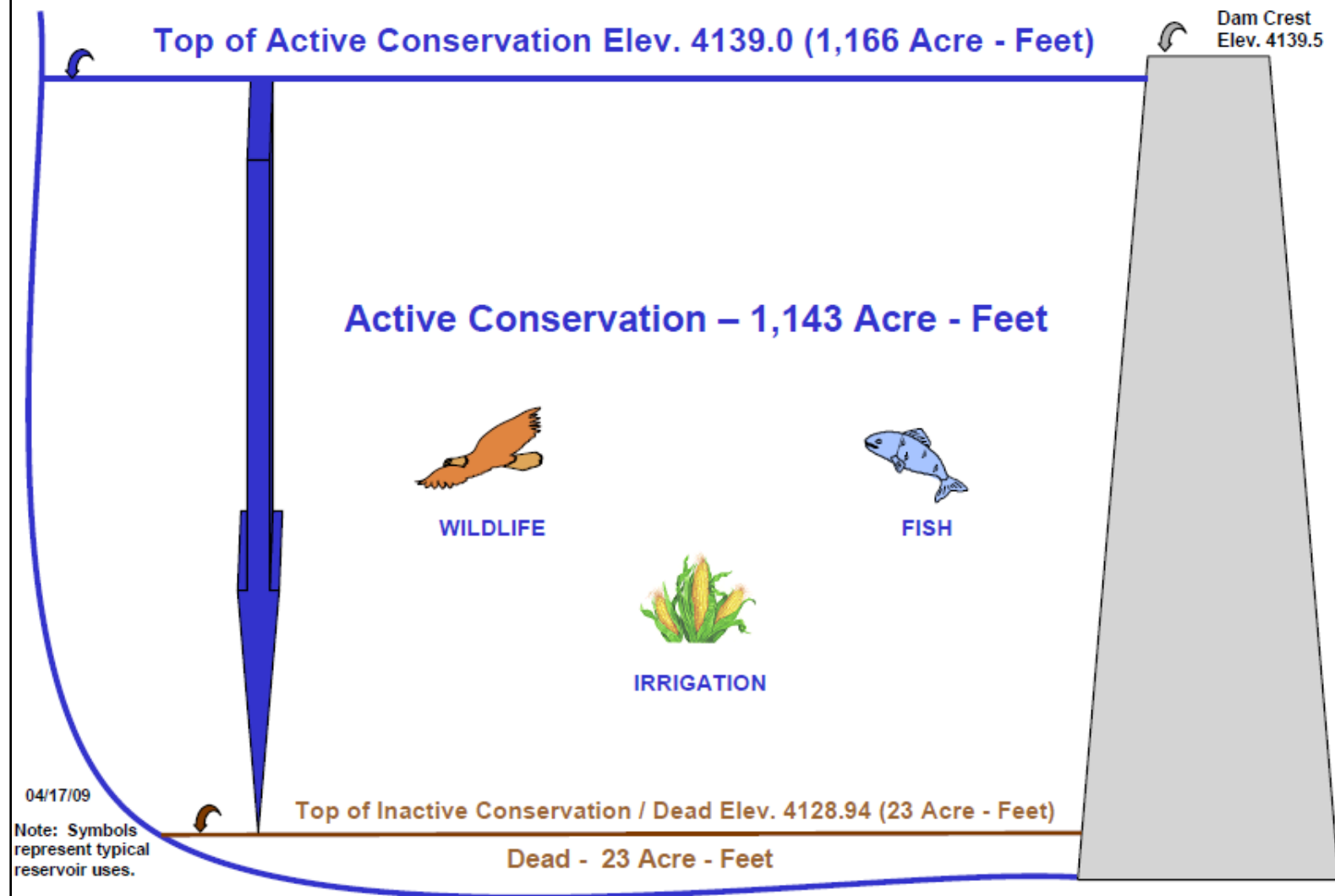
GUERNSEY RESERVOIR ALLOCATIONS



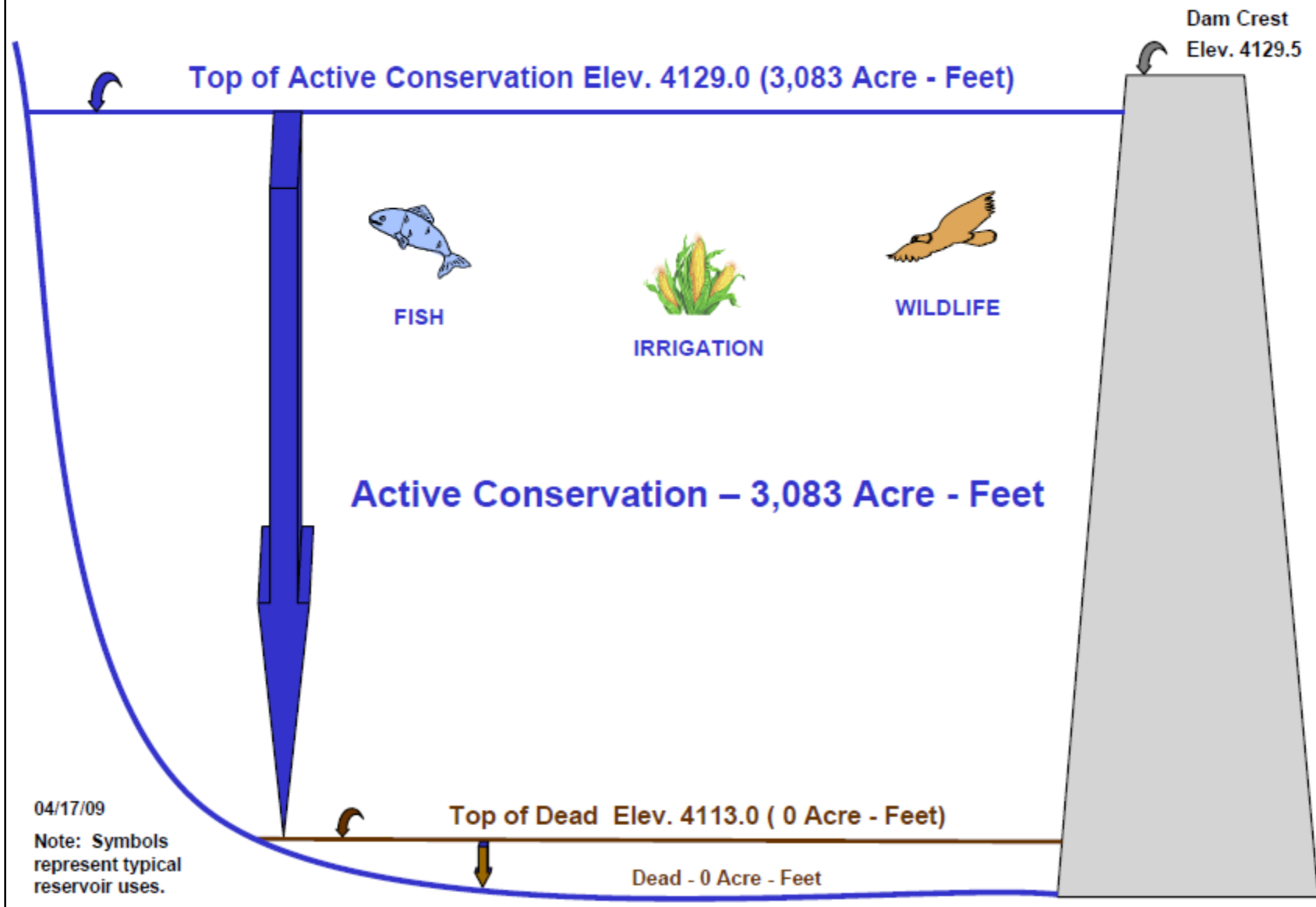
LAKE ALICE RESERVOIR ALLOCATIONS



LITTLE LAKE ALICE RESERVOIR ALLOCATIONS



WINTERS CREEK RESERVOIR ALLOCATIONS



LAKE MINATARE RESERVOIR ALLOCATIONS

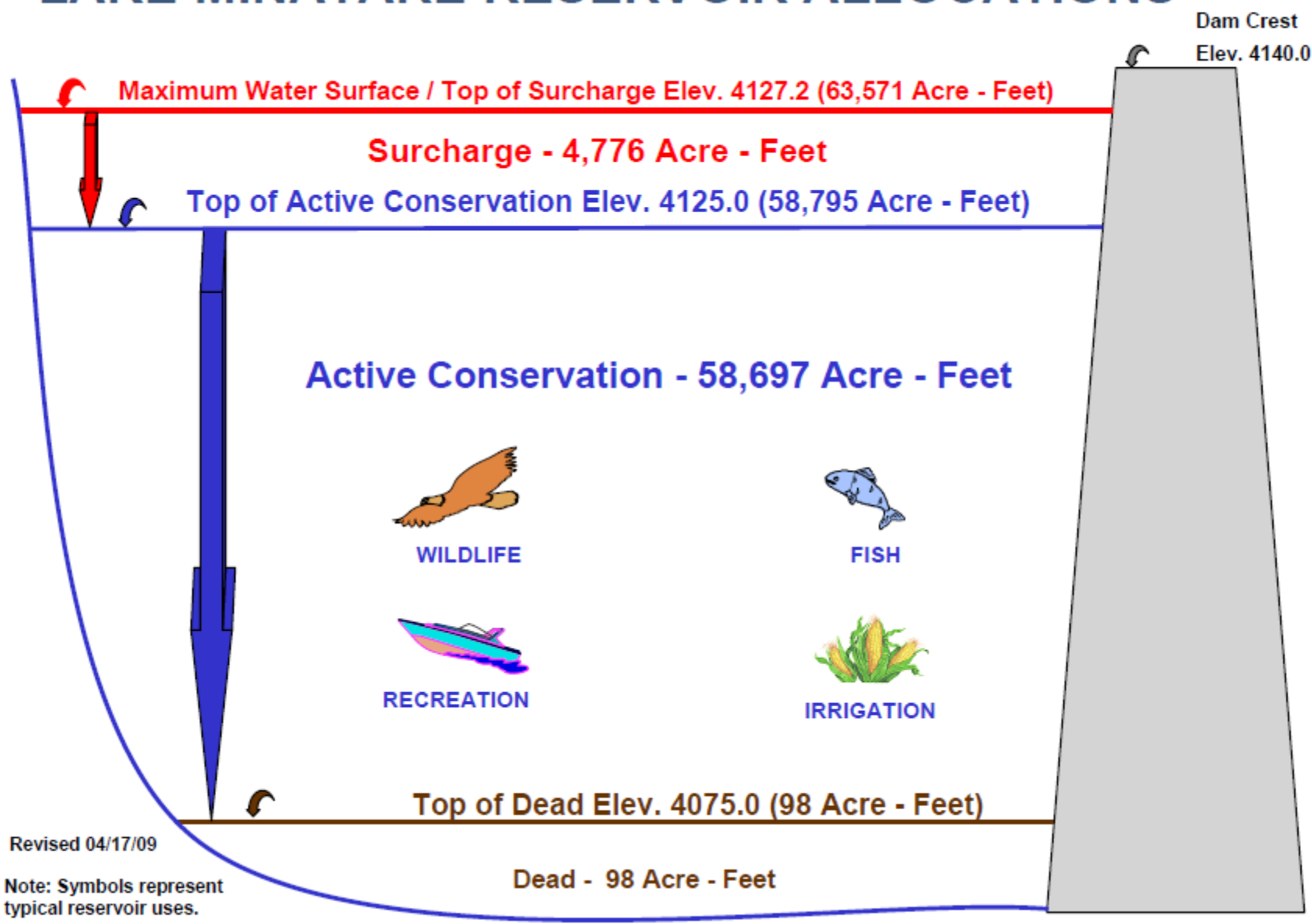


Figure 21 North Platte River Basin Map

