#### 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 1973-2002, except for Water Year 2004 information which uses the years 1974-2003. In each coming year this period will be advanced by one year to maintain a running 30-year average.

#### **INTRODUCTION**

The System of dams, reservoirs, and powerplants on the North Platte River (referred to as the "System" in this text) is monitored and in most cases operated and managed from the Wyoming Area Office in Mills, Wyoming. The operation and management of the System is aided by the use of a Programmable Master Supervisory Control, computerized accounting 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 nonnally extends from May through September. See Figure 20 represents historical watershed runoff above Pathfinder Reservoir from 1906 through 2002. The System furnishes irrigation water to over 440,000 acres of land in Wyoming and Nebraska.

The System includes the Kendrick Project in Wyoming; the North Platte Project in Wyoming and Nebraska; and the Kortes and Glendo Units of the Pick-Sloan Missouri Basin Program in Wyoming and Nebraska. Major rivers which affect the water supply in the System are the North Platte River in Colorado and Wyoming, and the Medicine Bow, and Sweetwater Rivers in Wyoming.

The System has seven main stem reservoirs, six of which have powerplants with a generating capacity totaling 237.2 megawatts (MW). Table 1 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) of the Department of Energy, headquartered in Golden, 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.

	Dead				
Reservoir	Storage 1/	Active	Total	Minimum	Minimum
	Acre-feet (AF)	Storage 2/	Storage	Storage	Elevation
		(AF)	(AF)	(AF)	(feet)
Seminoe	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	

#### Table 1 North Platte River Reservoir Data

1/ Storage capacity below elevation of lowest outlet

2/ Total storage minus dead storage

3/ Top of Conservation capacity 517,485 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 section of the river below Kortes Dam known as the Miracle Mile and also below Gray Reef Dam, 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. AOPs are prepared for reasonable maximum and reasonable minimum conditions of water supply and requirements as well as for the expected runoff conditions. The System is operated to optimize the expected water supply and still allow changes in operation should either reasonable maximum or reasonable minimum water supply conditions occur. This flexibility is the basis of the plan. 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 total storage at the end of September for the North Platte Reservoirs for the period water years 1912 through 2003. Table 2 depicts A Summary of end of month Reservoir Storage Content for Water Year 2003.

Seminoe Re	Seminoe Reservoir			Reservoir		Alcova Rese	Alcova Reservoir			
Month	Storage	Record 1/	Month	Storage	Record 1/	Month	Storage	Record 1/		
October	272,775	2" <sup>d</sup> lowest	October	309,707		October	158,393	3/		
November	253,912	2nd lowest	November	322,427		November	156,515			
December	234,307	lowest	December	335,252		December	157,012			
January	218,350	lowest	January	347,995		January	156,133			
February	205,389	lowest	February	360,575		February	156,043			
March	212,696	lowest	March	365,673		March	158,212			
April	243,385	2"a lowest	April	345,814		April	178,015			
May	303,891	lowest	May	381,222		May	180,547			
June	469,921	2 <sup>nd</sup> lowest	June	369,105		June	181,232			
July	394,930	3rd lowest	July	306,626		July	180,010			
August	354,542	3rd lowest	August	273,229		August	178,112			
September	332,979	3rd lowest	September	269,747		September	178,719			
Glendo Rese	ervoir		Guernsey R	eservoir		Total System	n 2/			
Month	Storage	Record 1/	Month	Storage	Record 1/	Month	Storage	Record 1/		
October	150,038		October	4,230		October	901,488	3 <sup>rd</sup> lowest		
November	181,742	3rd lowest	November	6,873		November	927,534	3 <sup>rd</sup> lowest		
December	210,279	3 <sup>°d</sup> lowest	December	9,364		December	951,847	2 <sup>nd</sup> lowest		
January	239,616	2 <sup>°</sup> d lowest	January	11,735		January	979,884	2 <sup>nd</sup> lowest		
February	268,801	lowest	February	13,760		February	1,010,607	2 <sup>nd</sup> lowest		
March	319,370	2 <sup>nd</sup> lowest	March	16,790		March	1,078,822	2 <sup>nd</sup> lowest		
April	401,436		April	28,517		April	1,203,324	4 <sup>th</sup> lowest		
May	452,707		May	33,601		May	1,357,692	2 <sup>nd</sup> lowest		
June	456,630		June	29,253		June	1,511,695	4 <sup>th</sup> lowest		
July	297,361		July	6,774		July	1,191,716	з <sup>rd</sup> lowest		
August	110,382		August	9,426	Lowest	August	931,244	3 <sup>rd</sup> lowest		
September	145,371	2" <sup>d</sup> highest	September	5,163		September	937,959	4 <sup>th</sup> lowest		

1/ Record is the 30 year period from 1973-2002

2/ Total North Platte system includes storage in Seminoe, Kortes, Pathfinder, Alcova, Gray Reef,

Glendo and Guernsey Reservoirs

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

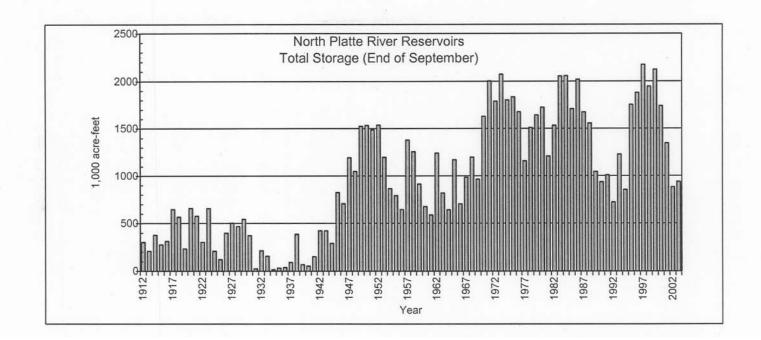


Figure 1 North Platte River Reservoirs — Total Storage (End of September)

## SYSTEM OPERATIONS WATER YEAR 2003 Seminoe Reservoir Inflow

Seminoe Reservoir inflows were below average for the entire water year. Only 671,600 AF or 68 percent of the 30 year average entered the system above Seminoe Reservoir during the water year which was the lowest Seminoe inflow of record. The monthly inflows ranged from a historical low of 31 percent of average in October, 2002 to a high of only 95 percent in June, 2003. The October inflow into Seminoe Reservoir has not been this low since water year 1957 and was the 4<sup>th</sup> lowest October inflow since the construction of Seminoe Darn in 1939 with only water years 1957, 1954, and 1953 being lower. The November inflow was the 2<sup>nd</sup> lowest. November inflow since the construction of Seminoe Dam in 1939 with only water year 1953 being lower. The December inflow was the 3<sup>rd</sup> lowest December inflow since the construction of Seminoe Dam in 1939 with only water years 1953 and 1945 being lower. The inflow into Seminoe Reservoir for January was the 5th lowest January inflow in the past 30 years. The inflow into Seminoe Reservoir for February was the 3rd lowest February inflow in the past 30 years. The inflow into Seminoe Reservoir for March was the 5<sup>th</sup> lowest March inflow in the past 30 years. The actual April through July inflow totaled 530,400 AF, which was 70 percent of the 30 year average of 757,500 AF. The computed Seminoe inflow peaked for the water year on June 3, 2003, at only 9,369 cubic feet per second (cfs). Figure 2 depicts a comparison of average, Water Year 2003 and Water Year 2002 monthly inflow.

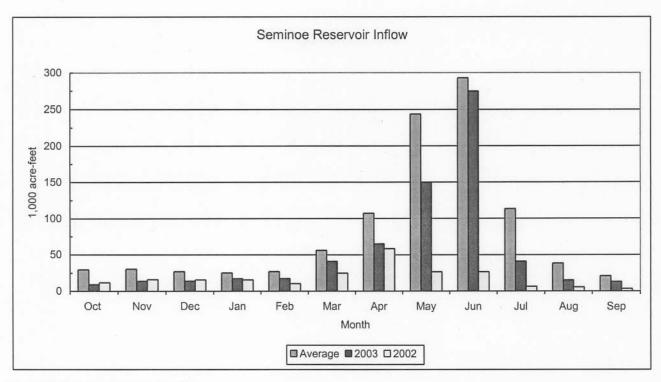


Figure 2 Seminoe Reservoir Inflow

## Seminoe Reservoir Storage and Releases

Seminoe Darn and Reservoir, on the North Platte River, is the main storage facility for the Kendrick Project. Construction of the darn 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 fixedwheel 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 2003, Seminoe Reservoir had a storage content of 298,556 AF, which was 41 percent of average and 29 percent of capacity. The Seminoe storage content remained below average for the entire water year. The maximum Seminoe Reservoir content was reached on June 29, 2003, at 470,249 AF. At the end of Water Year 2003, Seminoe Reservoir storage content was 332,979 AF, which was 40 percent of average and 33 percent of capacity. See Figure 3 for a comparison of average, Water Year 2003 and Water Year 2002 monthly storage.

Releases averaged approximately 540 cfs from October, 2002, through April, 2003. Releases were increased to approximately 1,700 cfs during May and increased to 1,800 cfs for June and July and then decreased to approximately 540 cfs on August 9, 2003 for the winter. All releases were made through the Seminoe Powerplant, except for three days (October 17, October 18, 2002 and January 28, 2003), when testing required bypass releases. Table 3 depicts a summary of Seminoe Reservoir information for water year 2003.

# Table 3 Seminoe Reservoir Hydrologic Data (Water Year 2003 - End of month)

Reservoir Alloc	cations	Elevation	(FT)	Storage	e (AF)		Storage Allocation (AF)
Top of Inactive	and Dead	6	239.00			31,670	
Top of Active (	Conservation	6	357.00			1,017,273	985,603
Crest of Dam (v	without Camber	) 6	361.00				
Storage-Elevati	on Data	[ Elevation	(FT)	Storage	( <b>AF</b> )		Date
			<u>`</u>	Storage	(AI)	200 556	
Beginning of W End of Water Y			302.79			298,556	Oct 1, 2002 2/
Annual Low	ear		306.98			332,979	Sep 30, 2003
	/		288.77			201,351	Mar 10 & 11, 2003
Historic Low 1	/		253.30			56,390	Apr 20, 1961
Annual High	/		321.16			470,249	Jun 29, 2003
Historic High 1			359.29	Wotar	Voor 1046	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		Inflow 3/		Date		Outflow	Date
Annual Total (A			71,500	Oct' 0	2 - Sep' 03	612,800	Oct' 02 - Sep' 03
Daily Peak (CF		9,369		Jun 3, 2003	1,824 4/	Jul 5, 2003	
Daily Minimun		2	1	<b>&amp;</b> 28, 2003	431 4/	Mar 26, 2003	
Peak Jet Flow V					,	616	Oct 18, 2003
Total Jet Flow	· · · · ·					1,463	Oct' 02 - Sep' 03
3/Inflows are a		ber.					, <u> </u>
4/Daily peak an			liver.				
Month	Inflow		Outflo	OW		Content	
	KAF	% of Avg. 5/	KAF		% of Avg. 5	5/ KAF	% of Avg. 5/
October	8.9	31		33.4	60	272.8	40
November	14.0	47		32.6	54	253.9	39
December	14.1	53		33.3	48	234.3	38
January	17.6	71		33.1	44	218.4	39
February	17.3	64		30.1	45	205.4	40
March	41.2	73		33.7	41	212.7	43
April	64.8	62		32.3	36	243.4	48
May	149.8	65		86.6	92	303.9	48
June	274.8	95		105.2	81	469.9	60
July	41.0	38		109.5	103	394.9	51
August	15.1	41		50.9	68	354.5	48
September	13.0	66		32.1	65	333.0	48
Annual	671.5	68		612.8	64		

5/The 30 year average is the period (1973-2002)

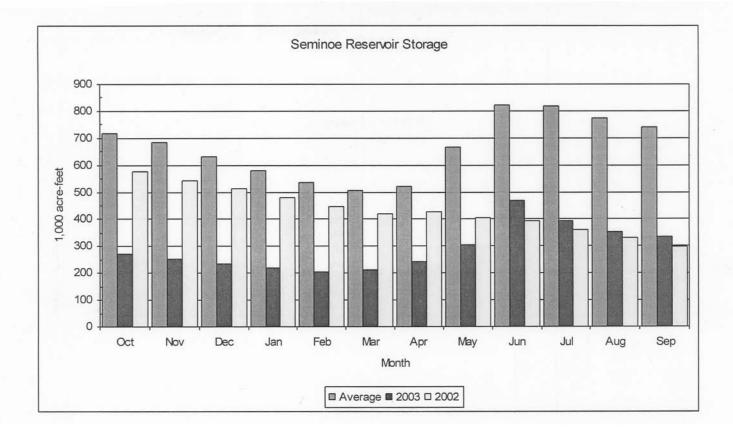


Figure 3 Seminoe Reservoir Storage

#### Kortes Reservoir Storage and Releases

Completed in 1951, Kortes Dam, Reservoir, and Powerplant of the Kortes Unit (Pick-Sloan Missouri Basin Project) are located about 2 miles below Seminoe Dam. It was the first unit initiated by the Bureau of Reclamation under the Missouri River Basin Project. Kortes Reservoir provides a 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 Seminoe Dam to Pathfinder Reservoir passes through the Kortes turbines to generate power. Maximum benefits are obtained when Kortes Reservoir remains full and the power releases are coordinated with those from Seminoe powerplant to maintain a full reservoir.

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

Senate Bill 2553 which was passed in the 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".

The Kortes releases averaged approximately 540 cfs from October, 2002, through April, 2003. Releases were increased to approximately 1,700 during May. Releases were increased to 1,775 cfs for June and July which was full generateing capacity of two Kortes powerplant units. Because of the lower than average spring runoff, Kortes releases were decreased to approximately 540 cfs on August 9, 2003 for the remainder of the water year. In water year 2003 all releases were made through the Kortes Powerplant, except for four occasions (October 17, October 18, and October 30, 2002, and January 28, 2003), when testing required bypass releases. The highest release for the Water Year was made on August 4, 2003, at a peak flow of only 1,807 cfs.

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

Kortes Darn to Pathfinder Darn river gains were above average from October, 2002 through February, 2003, with the remaining months during the Water Year being below average. The Kortes to Pathfinder river gains for December, 2002, were the 6th highest of record since the completion of Kortes Dam in 1951. The Kortes Darn to Pathfinder Dam river gains ranged from 184 percent in December, 2002 to 31 percent of average in May, 2003. The Kortes to Pathfinder river gains for June, 2003, were the 4<sup>th</sup> lowest in the last 30 years. The actual April through July gain was 41,800 AF, which is 40 percent of the 30 year average of 103,900 AF. Figure 4 depicts a comparison of average, Water Year 2003 and Water Year 2002 monthly river gains.

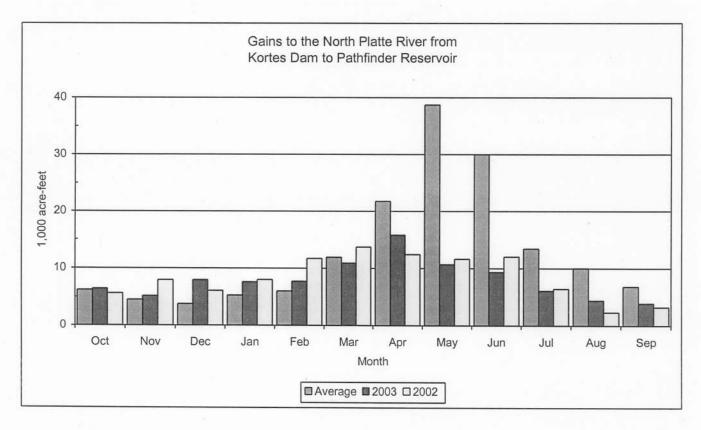


Figure 4 Gains to the North Platte River from Kortes Dam to Pathfinder Reservoir

#### 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 darn 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 any time the reservoir water surface exceeds 5850.10 feet a spill occurs. The calculated discharge capacity of the spillway is 33,940 cfs at reservoir elevation 5858.10 feet.

At the start of Water Year 2003, storage in Pathfinder Reservoir was 281,618 AF, which was 52 percent of average and 28 percent of capacity. Pathfinder storage remained below average for the entire Water Year. (See figure 5). The maximum Pathfinder Reservoir content for the Water Year was reached on June 12, 2003, at 392,957 AF which was only 39 percent of capacity. The Water Year ended with 269,747 AF of water in storage in Pathfinder Reservoir, which was 49 percent of average and only 27 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. Table 4 depicts a summary of Pathfinder Reservoir information for water year 2003.

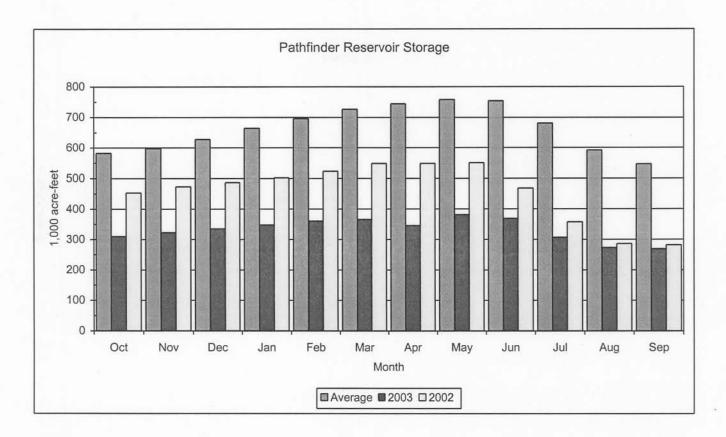


Figure 5 Pathfinder Reservoir Storage

Table 4 Pathfinder Reservoir Hydrologic Data (Water Year 2003 - End of month)

Reservoir Allocati	ons		Elevatio	on (FT)		Storage (A	F)		Storage	Allocatio	on (AF)		
Top of Inactive an	d Dead			574	16.00			31.405			31,405		
Top of Active Cor		n		585	50.10	1,016,507					985,102		
Crest of Dam (with				585	58.10			,			,		
		,											
Storage-Elevation	Data	j I	Elevatio	on (FT)		Storage (A	JF)		Date				
Beginning of Wate	er Year			579	98.03			281,618			Oct 1. 2002 3/		
End of Water Yea	r			579	96.48		,	269,747		S	ep 30, 2003		
Annual Low				579	96.33		,	268,619		S	ep 28, 2003		
Historic Low 1/2	/			569	90.00			0			Sep 9, 1958		
Annual High				581	0.59			392,957		Jı	un 12, 2003		
Historic High 1/				585	53.11		1,	083,755			Jul 7. 1983		
1/ The daily record	ds for thi	is table a	re only a	available	from	Water Year	1946						
2/ From Septembe	r 1958 tl	hrough Ja	nuary 1	959, Pat	hfinde	r Reservoir	was drai	ned for c	onstructi	on of Frer	nont		
Canyon tunnel.													
3/ Represents 000		on Octob	er 1.										
Inflow-Outflow Da	ata		Inflow	D	ate		0	utflow	Date				
Annual Total (AF)	)		708	,500	Oct, 20	002 - Sep, 2	003 6	93,100		Oct, 20	002 - Sep, 2003		
Daily Peak (CFS)						Jun 16, 2	003	2,869			Jul 21, 2003		
Daily Minimum (C	Minimum (CFS)			236		Mar 19, 2	003	79 4/	1		Oct 19, 2003		
Peak Jet Flow Val	ve (CFS	)						95			Nov 27, 2002		
Total Jet Flow Val								54,061			002 - Sep, 2003		
4/At the request of									ll be prov	vided thro	ugh the		
Pathfinder Rese						r below Patł	nfinder I	Darn.					
Month	Gain f	rom Kort	es	Inflow			Outflo			Content			
	KAF	% of A	vg. 5/	KAF	% 0	f Avg. 5/	KAF		Avg. 5/	KAF	% of Avg. 5/		
October	6.4	10		39.7		64	10.2		28	309.7	54		
November	5.2	11		37.9		58	24.9		52	322.4	55		
December	7.9	18		41.2		56	27.9		53	335.3	55		
January	7.6	14		40.7		50	27.4		51	348.0	54		
February	7.7	12		37.6		52	24.7		50	360.6	53		
March	10.9	90		44.6		47	39.1		54	365.7	52		
April	15.8	73		48.2		43	65.6		73	345.8	48		
May	10.7	31		97.5		76	58.3		53	381.2	52		
June	9.3	32		114.5		73	122.3		30	369.1	50		
July	6.0	47		115.5		97	171.7		96	306.6	46		
August	4.4	45		55.2		65	83.9		51	273.2	48		
September	3.9	59		35.9		64	37.1		39	269.7	51		
Annual	95.8	63	3	708.5		64	693.1		65				

5/30 year average is the period (1973-2002) 6/ Inflow includes the gain from Kortes Dam to Pathfinder Darn.

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

Alcova Darn and Reservoir is part of the Kendrick Project. The dam serves as a diversion darn 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 and accommodate recreation use, while the lower winter operating level reduces the potential for ice damage to the canal gate and boat docks.

The annual drawdown of Alcova Reservoir began on October 1, 2002, and continued through October 31, 2002, when Alcova reached its normal winter operating range of 5488 + one foot. The refill of Alcova Reservoir was initiated on April 1, 2003. The water surface elevation was raised above 5497 feet on April 30, 2003, and the reservoir was maintained within 1 foot of elevation 5498 throughout the summer. There were no bypass releases made at Alcova Reservoir during Water Year 2003.

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 Darn. 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 flows acceptable to irrigation, municipal, industrial, and fish and wildlife interests along the 147 miles of river between Alcova and Glendo Dams.

The Gray Reef releases were maintained at 500 cfs from October 1, 2002 until October 29, 2002, when at the request of BP Amoco and with the concurrence of Wyoming Game and Fish Department, releases were decreased to 450 cfs and maintained at that rate until March 17, 2003 to facilitate construction in Casper, Wyoming. At the request of the Wyoming Game and Fish Department, a series of flushing flows were initiated on March 17, 2003, and continued through March 21, 2003, during which the flows were varied each day from 450 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 then set at 450 cfs until April 9, 2003. Releases for the remainder of the Water Year were adjusted to manage upstream inflows from snowmelt runoff and to meet irrigation demands below Guernsey Reservoir. The largest release of water for the Water Year occurred on June 22, 2003 at 2,702 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 most of the Water Year with only April, 2003 being above average. The actual April through July gain was 93,200 AF, which was 66 percent of average. The computed daily river gains and the daily computed Glendo Reservoir inflow both peaked on April 25, 2003, at 2,136 cfs and 3,173 respectively. Figure 6 depicts a comparison of average, Water Year 2003 and Water Year 2002 monthly river gains.

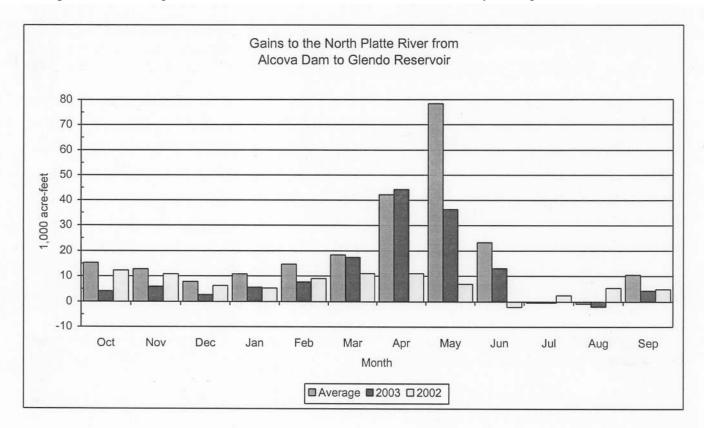


Figure 6 Gains to the North Platte River from Alcova Dam to Glendo Reservoir

#### 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 2 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 darn), 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. Releases are, however, restricted to 6,600 cfs as a precautionary practice. This precautionary practice is to minimize the potential for damage to the stilling basin and training walls. In order to exceed 6,600 cfs discharge through the primary outlet works, prior approval of the Director, Denver Technical Service Center and of the Great Plains Regional Director, Billings, Montana is required. 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 114,785 AF at the beginning of Water Year 2003, which was 115 percent of average but only 22 percent of capacity. Water releases from Glendo Reservoir were initiated on May 20, 2003, in order to refill Guernsey Reservoir in preparation of irrigation releases. The reservoir reached a maximum storage for the year of 471,497 AF (elevation 4631.11 feet) on June 20, 2003. At the end of the Water Year, Glendo Reservoir contained 145,371 AF of water (water surface elevation 4590.22 feet) which was 144 percent of average and only 28 percent of capacity. Figure 7 depicts Water Year 2003 and Water Year 2002 end of month reservoir storage compared to average. Table 5 depicts a summary of Glendo Reservoir information for water year 2003.

#### Table 5 Glendo Reservoir Hydrologic Data (Water Year 2003 - End of month)

Reservoir Allocations		E	levation (FT)	S	storage (AF	F)		Storage Alloca	ation (AF)		
Top of Inactive and De	ead		4570.00		63,14	8			63,148		
Top of Active Conserv			4635.00		517,48		454.				
Top of Exclusive Floor			4653.00		789,40				271,917		
Maximum water surfac			4669.00		1,118,65				329,251		
Crest of Dam (without			4675.00		-,,,	-					
							I				
Storage-Elevation Data	ı	E	levation	S	torage (AF	F)	Date				
0			(FT)		U V	, 					
Beginning of Water Ye	ear	4	4583.80		114,78	5		Oct	1,2002 1/		
End of Water Year			4590.22		145,37				), 2003		
Annual Low		4	4581.99		106,97			Aug 27			
Historic Low		4	4548.10		15,14	0		Sep 2	8,1966		
Annual High		4	4631.11		471,49	7		Jun 20	), 2003		
Historic High		4	4650.94		758,83	0		May 2	8, 1973		
1/ Represents 0001 ho	urs on Octob	er 1.									
Inflow-Outflow Data		Inflow	1	Date		0	utflow 1/	Date			
Annual Total (AF)			744,900	Oct, 2002 - S	Sep,2003	68	38,400	Oct, 2002 -	Sep, 2003		
Daily Peak (CFS)			3,268	Jun	29, 2003		7,477	Jul 31,- Au	ıg 2, 2003		
Daily Minimum (CFS)			52	Fel	b 7, 2003		25 2/	Oct, 2002 - 3	Sep, 2003		
Peak Bypass Release (							3,681	Au	ıg 3, 2003		
Total Bypass Release (							10,708 1/	Oct, 2002 -	Sep, 2003		
1/ Includes the average											
2/ A low flow outlet w						cfs	s is maintained				
Month	Gain from		Inflow 6		Outflow			Content			
	KAF	% of	KAF	% of	KAF		% of	KAF	% of		
		Avg. 4/		Avg. 4/			Avg. 4/		Avg. 4/		
October	4.1	27	37.8			1.7	62 5/	150.0	88		
November	5.9	47	34.2			1.7	104 5/	181.7	79		
December	2.7	35	30.7			1.8	96 5/	210.3	75		
January	5.6	52	32.2			2.3	115 5/	239.6	72		
February	7.7	53	31.8			1.7	74 5/	268.8	70		
March	17.4	96	53.2			1.7	6	319.4	75		
April	44.3	112	85.0			2.0	3	401.4	88		
May	36.3	53	76.2			).7	16	452.7	93		
June	13.0	59 NA 27	108.2		99		57	456.6	99		
July	4	NA 3/	145.1		298		95	297.4	99 70		
August	-2.0	NA 3/	71.7			255.3 86 110.4			78		
September Annual	4.3	<u>45</u> 64	38.2			1.6 1 145.4 144		144			
Annual 3/Represents a pegative					688	5.4	59				

3/Represents a negative number that makes the percentage meaningless. 4/30 year average is the period (1973-2002) 5/9 year average is the period (1994-2002)

6/ Inflow includes the gain from Alcova Dam to Glendo Dam.

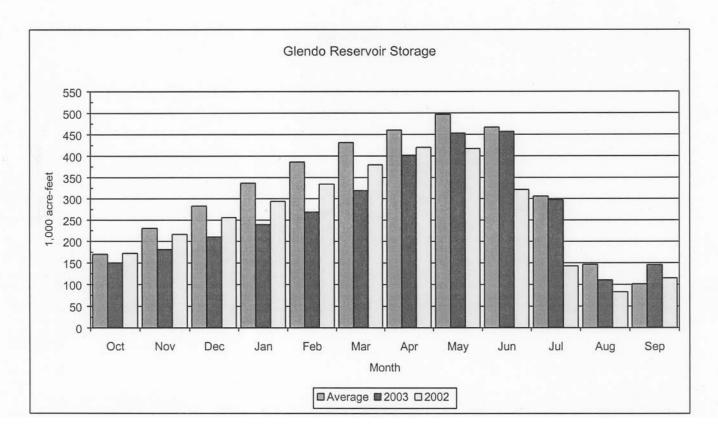


Figure 7 Glendo Reservoir Storage

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

The river gains between Glendo Dam and Guernsey Dam during Water Year 2003 were below average for eleven months with only the month of April, 2003 being above average. The actual April through July gain was 20,600 AF which was 94 percent of the 30 year average. On August 1, 2003, daily computed inflow to Guernsey Reservoir peaked at 7,659 cfs. Figure 8 depicts a comparison of average, Water Year 2003 and Water Year 2002 monthly river gains.

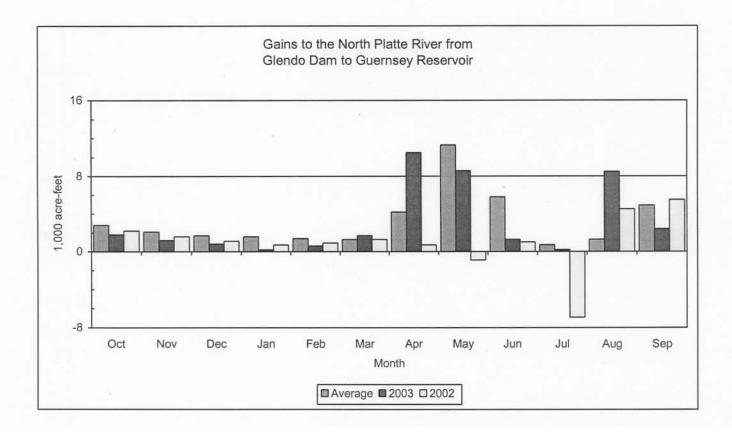


Figure 8 Gains to the North Platte River from Glendo Dam to Guernsey Reservoir

## 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 AF of available storage.

At the beginning of Water Year 2003, storage in Guernsey Reservoir was at 1,035 AF. Releases from Guernsey Reservoir were started on May 18, 2003, as water was moved into the Inland Lakes. The annual "silt run" from the reservoir was initiated on July 10 and continued for 21 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 355 AF occurred on July 29, 2003. Following the "silt run," the reservoir was refilled to 25,726 AF by August 3, 2003 again making the reservoir suitable for recreation. At the end of the irrigation season, September 30, 2003, Guernsey Reservoir contained 5,163 AF. See Figure 9 for Water Year 2003 and Water Year 2002 storage compared to average.

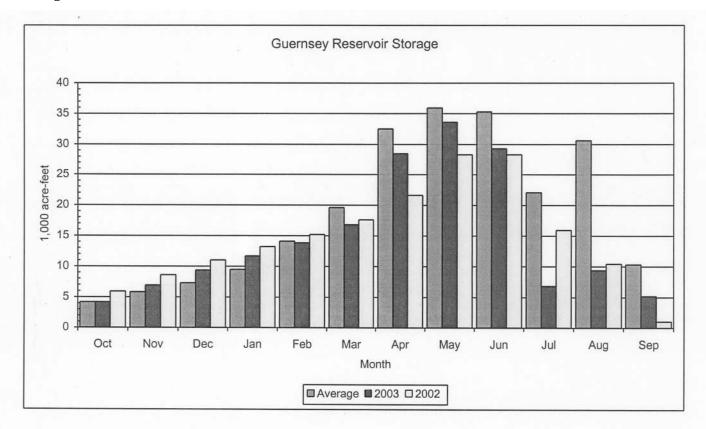


Figure 9 Guernsey Reservoir Storage

## Water Year 2003 Precipitation

Although the precipitation was quite variable from month to month throughout the North Platte River Basin, all watersheds had below average total precipitation for the Water Year.

Precipitation in the Glendo watershed at the Pathfinder Dam and Casper, Wyoming, weather stations recorded the 5th and 4th lowest November precipitation in the last 30 years respectively. Precipitation in the Guernsey watershed at the Guernsey Dam, Wyoming, weather station recorded the lowest November precipitation in the last 30 years.

Precipitation in the Seminoe watershed at the Elk Mountain and Saratoga, Wyoming, weather stations tied the 2<sup>nd</sup> lowest December precipitation in the last 30 years respectively. The Glenrock, Wyoming, weather station in the Glendo watershed, showed no December precipitation for only the 2<sup>nd</sup> time in the last 30 years. Precipitation in the Guernsey watershed at the Glendo Dam, Wyoming, weather station tied the 2<sup>nd</sup> lowest December precipitation in the last 30 years.

Precipitation in the Seminoe watershed at the Elk Mountain, Wyoming, weather station recorded the 4th lowest January precipitation in the last 30 years. The Muddy Gap, Wyoming, weather station in the Sweetwater watershed, showed no January precipitation for only the 2<sup>nd</sup> time in the last 30 years. Precipitation in the Glendo watershed at the Casper, Wyoming, weather station recorded the 2<sup>nd</sup> lowest January precipitation in the last 30 years. Precipitation in the Glendo Dam, Wyoming, weather station recorded the 4th lowest January precipitation in the last 30 years.

In the Pathfinder watershed the weather station at Lander, Wyoming recorded the 3<sup>rd</sup> highest February precipitation in the last 30 years.

In the Seminoe watershed the weather station at Elk Mountain, Wyoming recorded the 2nd highest March precipitation of record in 98 years with only water year 1944 being higher. In the Pathfinder watershed the weather station at Muddy Gap, Wyoming recorded the 4th highest March precipitation in the last 30 years. In the Glendo watershed the weather station at Glenrock, Wyoming recorded the 2nd highest March precipitation in the last 30 years. In the Glendo watershed the weather station at Glenrock, Wyoming recorded the 2nd highest March precipitation in the last 30 years. In the Guernsey watershed the weather station at Glendo Dam, Wyoming recorded the highest March precipitation of record since the construction of Glendo Darn in 1958 and the Guernsey Darn weather station recorded the highest March precipitation of record in 58 years.

In the Seminoe watershed the weather stations at Walden, Colorado, and Saratoga, Wyoming, recorded the 3rd and 5th highest April precipitation in the last 30 years, respectively. In the Pathfinder watershed the weather station at South Pass, Wyoming recorded the 5th lowest April precipitation in the last 30 years.

Precipitation in the Glendo watershed at the Casper, Wyoming, weather station recorded the 2<sup>nd</sup> lowest May precipitation in the last 30 years with only water year 1994 being lower. Precipitation in the Guernsey watershed at the Glendo and Guernsey Dams, Wyoming, weather stations both recorded the 4th lowest May precipitation in the last 30 years.

Precipitation in the Seminoe watershed at the Walden, Colorado, weather station tied the highest June precipitation of record in 66 years which occurred in Water Year 1969. Precipitation in the Sweetwater watershed at the Pathfinder Dam, Wyoming, weather station recorded the 3 <sup>rd</sup> highest June precipitation of record in 102 years and the Muddy Gap, Wyoming, weather station record the highest June precipitation in the last 30 years. Precipitation in the Glendo watershed at the Casper, Wyoming, weather station recorded the highest June precipitation of record in 89 years. Precipitation in the Guernsey watershed at the Glendo Dam, Wyoming, weather station recorded the 5th highest June precipitation in the last 30 years.

Precipitation in the Seminoe watershed at the Saratoga, Wyoming, weather station recorded the 3<sup>rd</sup> lowest July precipitation of record in 102 years. Precipitation in the Sweetwater watershed at the Muddy Gap, Wyoming, weather station recorded the 4<sup>th</sup> lowest July precipitation in the last 30 years. Precipitation in the Glendo watershed at the Casper, Wyoming, weather station recorded the 5<sup>th</sup> lowest July precipitation in the last 30 years. Precipitation in the Glendo Dam, Wyoming, weather station recorded the 3<sup>rd</sup> lowest July precipitation in the last 30 years.

Precipitation in the Glendo watershed at the Casper, Wyoming, weather station recorded the 4<sup>-1</sup> highest August precipitation in the last 30 years.

Precipitation in the Seminoe watershed at the Elk Mountain, Wyoming, weather station recorded the 3rd highest September precipitation in the last 30 years. Precipitation in the Pathfinder watershed at the Pathfinder Dam, Wyoming, weather station recorded the 6<sup>th</sup> highest September precipitation in the last 30 years. Precipitation in the Glendo watershed at the Casper and Pathfinder Darn, Wyoming, weather stations both recorded the 6<sup>th</sup> highest September precipitation in the last 30 years. See Figure 10 for a comparison of average, Water Year 2003, and Water Year 2002 total precipitation.

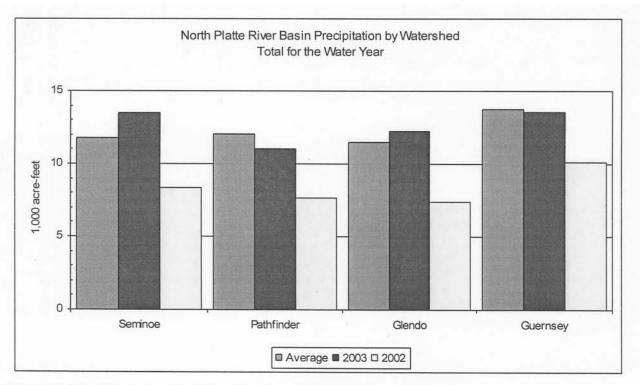


Figure 10 North Platte River Basin Precipitation by Watershed Total for Water Year

#### Allocation for water year 2003

For the second year in a row because of low carryover storage, drought conditions and below average snowmelt runoff, an allocation of storage water was put into effect on June 26, 2003. The allocation applied to the four Government Districts, (Pathfinder Irrigation District (ID), Goshen ID, Gering-Fort Laramie ID and Northport ID) and to the nine Warren Act Contractors, (Farmers ID, Gering ID, Lingle Water Users Assoc., Hill ID, Rock Ranch ID, Central ID, Chimney Rock ID, Browns Creek ID, and Beerline Irrigation Canal Co).

In addition to the allocation, seven Districts had entered into a Temporary Water Exchange (Loan)/Replacement Contract with the Bureau of Reclamation in Water Year 2002. Water loaned to those Disticts was replaced by the Districts in water year 2003 on an acre-foot for acre-foot basis from the first water available to the District, irrespective of existing water supply conditions and the resultant water supply remaining for use by the Districts, following such replacement. The seven districts and the amounts replaced were Pathfinder ID (40,000 AF), Goshen ID (13,950 AF), Gering-Fort Laramie ID (20,000 AF), Northport ID (10,000 AF), Gering ID (4,988 AF), Browns Creek (254 AF), and Lingle Water Users Assoc. (32 AF) for total amount replaced of 89,224 AF which was repaid on June 27, 2003.

#### Water Year 2003 Ownerships

At the beginning of Water Year 2003, the North Platte Project ownership (includes North Platte Pathfinder and North Platte Guernsey), contained only 10,870 AF of water, which is only 2 percent of average. The Kendrick ownership contained 773,926 AF of water, which is 79 percent of average; and the Glendo ownership contained 89,893 AF of water, which is 65 percent of average. Only two ownerships filled to their permitted amount during water year 2003. The North Platte Project Guernsey filled on April 25, 2003 and North Platte Project Inland Lakes filled on April 28, 2003.

The total amount of water stored at the end of Water Year 2002 in the mainstem reservoirs for use in Water Year 2003 was only 881,519 AF which was 56 percent of average. This total does not include 9,406 AF of water remaining in the four Inland Lakes in Nebraska.

At the end of Water Year 2003, the North Platte Project ownership (includes North Platte Pathfinder and North Platte Guernsey), contained only 72,233 AF of water which is only 17 percent of average. The Glendo ownership contained 104,499 AF of water which is 76 percent of average. The Kendrick ownership contained 752,534 AF, which is 77 percent of average and the operational/re-regulation water account contained 4,574 AF. Also stored in the North Platte storage system was 1,722 AF for the City of Cheyenne and 2,000 AF for Pacific Power. See Figure 11 for the last two Water Years ownership carryover compared with average. Table number 6 shows a summary of ownership for Water Year 2003.

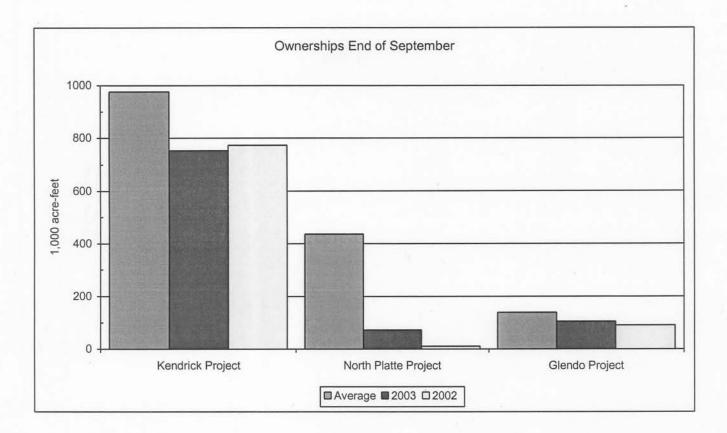


Figure 11 Ownership End of September

Table 6	Summary of Nor	th-Platte River System	Ownership for	Water Year 2003

SUMMARY	OF NORTH	I PLATTE I	RIVER SYS	TEM OWN	ERSHIPS	FOR WAT	ER YEAR 2	003 (Acre-f	eet1					Table 6
MONTHS	SEF	P OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Page I of 2 TOTAL
PATHFINDER OWN ERSH	ΙP													
ACCRUAL A/		17803	20095	21162	23542	23699	49919	74025	154253	218759	806	991	19295	624349
EVAPORATION		215	95	103	218	135	96	1688	2910	5579	7715	4088	1228	24070
DELIVERY B/		0	0	C	C	0	0	0	0	89224 D/	228032	216350	460	534066
OWNERSHIP	[ 6020	23608	43608	64667	87991	111555	161378	233715	385058	509014	274073	54626	72233	
KENDRICK OWNERSHIP														
ACCRUAL		0	0	0	0	0	0	0	0	89224 Di	0	0	0	89224
EVAPORATION		2840	659	920	1017	510	325	4102	5634	5525	10079	8222	4388	44221
DELIVERY B/		0	0	(1	0	0	0	0	9881	14289	19728	16870	5627	66395
OWNERSHIP	ı 773926	771086	770427	769507	768490	767980	767655	763553	748038	817448	787641	762549	752534	
GLENDO OWNERSHIP														
ACCRUAL		0	0	0	(1	9	0	13925	38787	6332	0	24	6879	65956
EVAPORATION		1075	770	321	484	731	603	361	1808	1800	3400	3383	1758	16494
DELIVERY & LOSS 11/		0	0	0	0	0	0	0	1214	706	15726	9475	7735	34856
OWNERSHIP	ı 89893	88818	88048	87727	87243	86521	85918	99482	135247	139073	119947	107113	104499	
PACIFIC POWER & LIGH	Т													
ACCRUAL		0	0	0	0	0	0	0	147	23	31	38	25	264
DELIVERY FI/		0	0	0	0	0	0	0	0	0	0	0	0	0
EVAPORATION		12	6	I	7	4	4	2	-)I	23	31	38	25	170
IN STORAGE	I 1906	1894	1888	1887	1884	1880	1876	1874	2000	2000	2000	2000	2000	
GUERNSEY OWNERSHIP														
ACCRUAL		0	0	3435	5748	8185	18862	5295	0	0	0	0	0	41525
EVAPORATION		115	91	37	71	195	234	379	838	883	122	0	0	2965
DELIVERY B/		0	0	0	0	2	0	0	0	12873	30535	0	0	43410
OWNERSHIP	I 4850	4735	4644	8042	13719	21707	40335	45251	44413	30657	0	0	0	
INLAND LAKES OWNERS	HIP													
ACCRUAL		5690	6963	0	0	0	0	33487	0	0	0	0	0	46140
EVAPORATION TRANSFER 0		1	60	6	17	31	25	144	350	49	0	0	0	683
TRANSFER 0		0	0	0	0	0	0	0	22981	22476	0	0	0	45457
OWNERSHIP	0	5689	12592	12586	12569	12538	12513	45856	22525	0	(1	0	0	

#### Summary of North Platte River System Ownership for Water Year 2003 (Continued)

#### SUMMARY OF NORTH PLATTE RIVER SYSTEM OWNERSHIPS FOR WATER YEAR 2003 (Acre-feet)

MONTHS CITY OF CHEYENNE	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	МАУ	JUN	JUL	AUG	SEP	TOTAL
ACCRUAL		758	381	80	207	442	620	1509	2360	304	333	639	623	8256
EVAPORATION		24	2	4	5	0	0	65	93	26	0	3		224
DELIVERY It/		0	106	81	0	0	0	0	3553	7028	298	117	51	11234
OWNERSHIP	4924	5658	5931	5926	6128	6570	7190	8634	7348	598	633	1152	1722	
OPERATIONAL														
ACCRUAL		0	0	0	0	0	0	2430	8153	484	0	0	2106	13253
EVAPORATION		0	0	0	0	0	0	2	73	100	141	119	43	478
RELEASED		0	0	0	0	11	0	0	0	518	3441	3392	850	8201
OWNERSHIP	0	0	0	0	0	0	0	2428	10508	10374	6792	3281	4574	
RE-REGULATION														
ACCRUAL		0	0	0	0	0	0	0	0	0	0	0	0	0
EVAPORATION		0	0	0	0	0	0	0	0	0	0	0	0	0
RELEASED		0	0	0	0	0	0	0	0	0	0	0	0	
OWNERSHIP		0	0		0	0	0	)	0	0	0	0		
WWDC Water						r	r				r r	r		
ACCRUAL E/		0	397	1110	357	0	0	583	150	0	0	2	0	2599
EVAPORATION		0	1	I	2	4	4	7	23	24	19		0	87
RELEASED		0	0	0	0	0	0	0	0	0	1882	107	126	2115
OWNERSHIP	0	0	396	1505	1860	1856	1852	2428	2555	2531	630	523	0F/	

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, 2003 until August 1, 2003, when the last 6 AF of the exchange water 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. 22,981 AF in May and 22,476 AF in June was transferred to the Inland Lakes.

D/ Not an actual accrual or delivery but 89,224 AF of Temporary Water Exchange (Loan)/Replacement water which was returned to Kendrick ownership from Pathfinder Ownership on June 27, 2003.

E/ Wyoming Water Development Commission (WWDC) contracted with the Bureau of Reclamation for storage space of 4,700 AF of non-project water in Glenda Reservoir for a one water year period (for irrigation purposes). WWDC's water source was the City of Cheyenne's "Excess Stage II Water" from Hog Park and Rob Roy Reservoirs which was diverted into Seminoe Reservoir for conveyance to Glendo Reservoir for storage and delivery. At the end of irrigation season, on October 1, 2003, 397 AF of WWDC water was returned to the City of Cheyenne.

#### Table 7 Actual Reservoir Operations

Page 1

# NORTH PLATTE RIVER ACTUAL RESERVOIR OPERATIONS Year Beginning Oct 2003

HYDROLOGY OPERATIONS

Seminoe Reservoir Op	erati	ons		Initial	Content	298.6	Kaf	Operat	ing Limit	s: Max Min	1017.3 31.7		7.00 Ft. 9.02 Ft.
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Total Inflow	kaf	8.9	14.0	14.1	17.6	17.3	41.2	64.8	149.8	274.8	41.0	15.1	13.0
Total Inflow	cfs	145.	236.	229.	286.	312.	670.	1089.	2436.	4618.	667.	245.	218.
Turbine Release	kaf	32.0	32.6	33.3	33.1	30.1	33.7	32.3	86.6	105.2	109.5	50.9	32.1
Jetflow Release	kaf	1.4	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	33.4	32.6	33.3	33.1	30.1	33.7	32.3	86.6	105.2	109.5	50.9	32.1
Total Release	cfs	543.	548.	541.	538.	542.	548.	543.	1408.	1768.	1781.	828.	539.
Evaporation	kaf	1.3	0.3	0.4	0.4	0.2	0.2	1.8	2.7	3.6	6.5	4.6	2.5
End-month content	kaf	272.8	253.9	234.3	218.4	205.4	212.7	243.4	303.9	469.9	394.9	354.5	333.0
End-month elevation	ft	6299.4	6296.8	6294.0	6291.5	6289.4	6290.6	6295.3	6303.5	6321.1	6313.8	6309.5	6307.0
Kortes Reservoir Ope	ratio	ne		Tnitial	Content	4.68	əf	Operati	ng Limits	: Max	4.8 F	af 6142	.73 Ft.
KOILES KESEIVOII OPE	Tatio	115		IIIICIAI	concent	4.00	ar	operati	IIG DIMITC	,. Min Min		Kaf, 609	
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Total Inflow	kaf	33.4	32.6	33.3	33.1	30.1	33.7	32.3	86.6	105.2	109.5	50.9	32.1
Total Inflow	cfs	543.	548.	541.	538.	542.	548.	543.	1408.	1768.	1781.	827.	539.
Turbine Release	kaf	31.6	32.7	33.3	32.3	29.9	33.7	32.3	86.8	105.2	109.5	50.8	32.1
Spillway Release	kaf	1.7	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Release	kaf	33.3	32.7	33.3	33.2	29.9	33.7	32.3	86.8	105.2	109.5	50.8	32.1
Total Release	cfs	542.	550.	541.	540.	539.	548.	543.	1411.	1767.	1781.	827.	539.
IOCAI REIEASE	CLS	J42.	550.	541.	540.	559.	540.	545.	1411.	1/0/.	1/01.	027.	555.
Pathfinder Reservoir	Oper	ations		Initial	Content	281.6	Kaf	Operat	ing Limit	s: Max Min	1016.5 31.4		0.10 Ft. 6.00 Ft.
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep
Sweetwater Inflow	kaf	1.1	2.2	2.6	2.2	1.7	3.3	7.4	4.6	3.7	1.7	0.6	0.3
Kortes-Path Gain	kaf	5.3	3.0	5.3	5.4	6.0	7.6	8.4	6.1	5.6	4.3	3.8	3.6
Inflow from Kortes	kaf	33.3	32.7	33.3	33.2	29.9	33.7	32.3	86.8	105.2	109.5	50.8	32.1
Total Inflow	kaf	39.7	37.9	41.2	40.7	37.6	44.6	48.2	97.5	114.5	115.5	55.2	35.9
Total Inflow	cfs	645.	637.	670.	662.	677.	725.	809.	1585.	1924.	1879.	898.	604.
Turbine Release	kaf	5.7	20.5	23.3	22.9	20.4	34.9	61.2	53.7	117.8	167.1	79.3	32.6
Jetflow Release	kaf	4.5	4.4	4.6	4.5	4.3	4.6	4.4	4.6	4.5	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	10.2	24.9	27.9	27.4	24.7	39.1	65.6	58.3	122.3	171.7	83.9	37.1
Total Release	cfs	166.	418.	454.	446.	446.	637.	1102.	948.	2056.	2793.	1365.	624.
Evaporation	kaf	1.4	0.3	0.5	0.6	0.3	0.3	2.4	3.7	4.3	6.3	4.7	2.3
End-month content	kaf	309.7	322.4	335.3	348.0	360.6	365.7	345.8	381.2	369.1	306.6	273.2	269.7
End-month elevation	ft	5801.5	5803.0	5804.5	5805.9	5807.3	5807.8	5805.7	5809.4	5808.2	5801.1	5796.9	5796.5
Alcova Reservoir Ope	ratio	ng		Tnitial	Content	179.5	Kəf	Operat	ing Limit	s: Max	184.4	Yof 550	0.00 Ft.
moora mober torr ope	10010			Interat	concent	1/2.5	IGIL	operat	THÀ DIMIT	Min Min	145.3		3.12 Ft.
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Total Inflow	kaf	10.2	24.9	27.9	27.4	24.7	39.1	65.6	58.3	122.3	171.7	83.9	37.1
Total Inflow	cfs	166.	418.	454.	446.	446.	637.	1102	948.	2056.	2793.	1365.	624.
Turbine Release	kaf	30.9	26.7	27.3	28.1	24.8	36.9	45.2	45.0	106.3	151.5	67.5	30.2
Spillway Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	13.2	45.0	0.0	0.0	0.0	0.0
Casper Canal Release		0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.8	14.3	19.7	16.9	5.6
Total Release	kaf	30.9	26.7	27.3	28.1	24.8	36.9	45.2	54.8	120.6	171.2	84.4	35.8
Total Release	cfs	503.	448.	443.	458.	446.	600.	759.	891.	2027.	2784.	1373.	602.
-star norouse	010	505.	110.	113.	100.	-10.	500.	133.	091.	2021.	2701.	. כוכב	002.
Evaporation	kaf	0.4	0.1	0.1	0.2	0.1	0.1	0.6	1.0	1.1	1.7	1.5	0.7
End-month content	kaf	158.4	156.5	157.0	156.1	156.0	158.2	178.0	180.5	181.2	180.0	178.1	178.7
End-month elevation	ft	5489.0	5488.2	5488.4	5488.0	5488.0	5489.0	5497.4	5498.4	5498.7	5498.2	5497.4	5497.7

## Actual Reservoir Operations (Continued)

#### NORTH PLATTE RIVER ACTUAL RESERVOIR OPERATIONS Year Beginning Oct 2003

Gray Reef Reservoir	Opera	tions		Initial	Content	1.3	Kaf	Operat	ing Limit	s: Max Min	1.8		2.00 Ft. 6.00 Ft.
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Total Inflow	kaf	30.9	26.7	27.3	28.1	24.8	36.9	45.2	45.0	106.3	151.5	67.5	30.2
Total Inflow	cfs	503.	448.	443.	458.	446.	600.	759.	731.	1786.	2464.	1097.	507.
Total Release	kaf	30.6	26.8	27.7	27.6	24.9	36.8	45.0	45.1	106.4	150.9	67.9	29.7
Total Release	cfs	498.	451.	450.	449.	449.	599.	757	734.	1789.	2454.	1103.	499.
Glendo Reservoir Ope	ratio	ns		Initial	Content	114.8	Kaf	Operat	ing Limit				3.00 Ft.
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	Мау	Min Jun	Jul	Kaf, 457 Aug	0.02 Ft. Sep
Alcova-Glendo Gain	kaf	4.1	5.9	2.7	5.6	7.7	17.4	44.3	36.3	13.0	-0.4	-2.0	4.3
Infl from Gray Reef	kaf	30.6	26.8	27.7	27.6	24.9	36.8	45.0	45.1	106.4	150.9	67.9	29.7
Total Inflow	kaf	37.8	34.2	30.7	32.2	31.8	53.2	85.6	76.2	108.2	145.1	71.7	38.2
Total Inflow	cfs	615.	574.	499.	524.	572.	866.	1439.	1238.	1818.	2359.	1166.	641.
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.7	96.8	224.0	179.2	0.0
Low Flow Release	kaf	1.7	1.7	1.8	2.3	1.7	1.7	2.0	2.0	1.5	1.5	1.5	1.6
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	1.6	72.5	74.6	0.0
Total Release	kaf	1.7	1.7	1.8	2.3	1.7	1.7	2.0	20.7	99.9	298.0	255.3	1.6
Total Release	cfs	28.	28.	29.	38.	30.	28.	34.	337.	1680.	4846.	4152.	28.
Evaporation	kaf	0.9	0.8	0.3	0.6	0.9	0.9	1.5	4.2	4.3	6.3	3.4	1.5
End-month content	kaf	150.0	181.7	210.3	239.6	268.8	319.4	401.4	452.7	456.6	297.4	110.4	145.4
End-month elevation	ft	4591.1	4596.7	4601.2	4605.4	4609.4	4615.6	4624.5	4629.4	4629.8	4613.0	4582.8	4590.2
Guernsey Reservoir O	perat	ions		Initial	Content	1.0	Kaf	Operat	ing Limit				9.99 Ft.
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Min Jun	0.0 Jul	Kaf, 437 Aug	0.00 Ft. Sep
Glendo-Guerns Gain	kaf	1.8	1.2	0.8	0.2	0.6	1.7	10.5	8.6	1.3	0.2	8.5	2.4
Inflow from Glendo	kaf	1.7	1.7	1.8	2.3	1.7	1.7	2.0	20.7	99.9	298.0	255.3	1.6
Total Inflow	kaf	3.5	2.9	2.7	2.6	2.3	3.4	12.6	29.3	101.3	298.2	263.8	4.1
Total Inflow	cfs	56.	48.	43.	42.	41.	55.	211.	476.	1702.	4850.	4290.	68.
Turbine Release	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64.2	7.6
Seepage	kaf	0.2	0.1	0.1	0.1	0.1	0.2	0.6	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	23.4	104.8	320.2	196.0	0.4
Total Release	kaf	0.2	0.1	0.1	0.1	0.1	0.2	0.6	23.4	104.8	320.2	260.2	8.0
Total Release	cfs	3.	2.	2.	2.	2.	3.	9.	381.	1761.	5208.	4232.	134.
Evaporation	kaf	0.1	0.1	0.0	0.1	0.2	0.2	0.3	0.8	0.8	0.5	0.9	0.3
End-month content	kaf	4.2	6.9	9.4	11.7	13.8	16.8	28.5	33.6	29.3	6.8	9.4	5.2
End-month elevation	ft	4393.2	4397.0	4399.7	4401.8	4403.4	4405.5	4412.2	4414.7	4412.6	4396.9	4399.8	4394.7

Because of the existence of darns on the North Platte River, The Corps of Engineers, Omaha District, estimates that in Water Year 2003 flood damages of \$5,661,000.00 were prevented. Table 8 is a breakdown of flood damage prevented by Dams.

Table 8 Flood Damage Prevented by Dams (on the North Platte River Basin System)

DAMS	WATER YEAR 2003 1/	PRIOR TO 2003	ACCUMULATED TOTAL 2/
SEMINOE	\$203,400	\$27,642,800	\$27,846,200
PATHFINDER	\$0	\$8,760,200	\$8,760,200
ALCOVA	\$3,600	\$477,500	\$481,100
GLENDO	\$5,454,000	\$62,542,300	\$67,996,300
GUERNSEY	\$0	\$439,000	\$439,000
TOTAL	\$5,661,000	\$99,861,800	\$105,522,800

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 2003 except for Glendo Dam, which is 1965 through 2003.

#### 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).

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) - one million watts

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

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 Natural Resources Conservation Service 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.

Water Year - October 1 through September 30

Historic Pathfinder Watershed Runoff

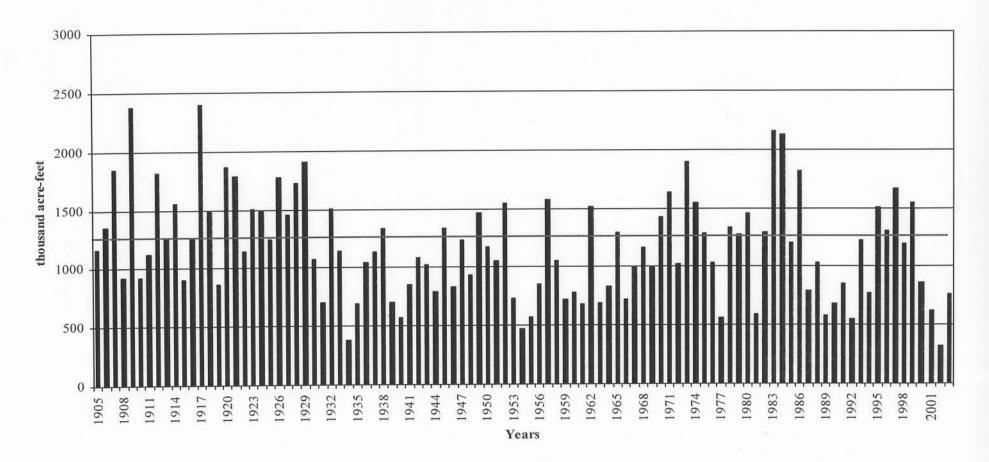


Figure 20 Pathfinder Watershed Runoff 1906-2003

64