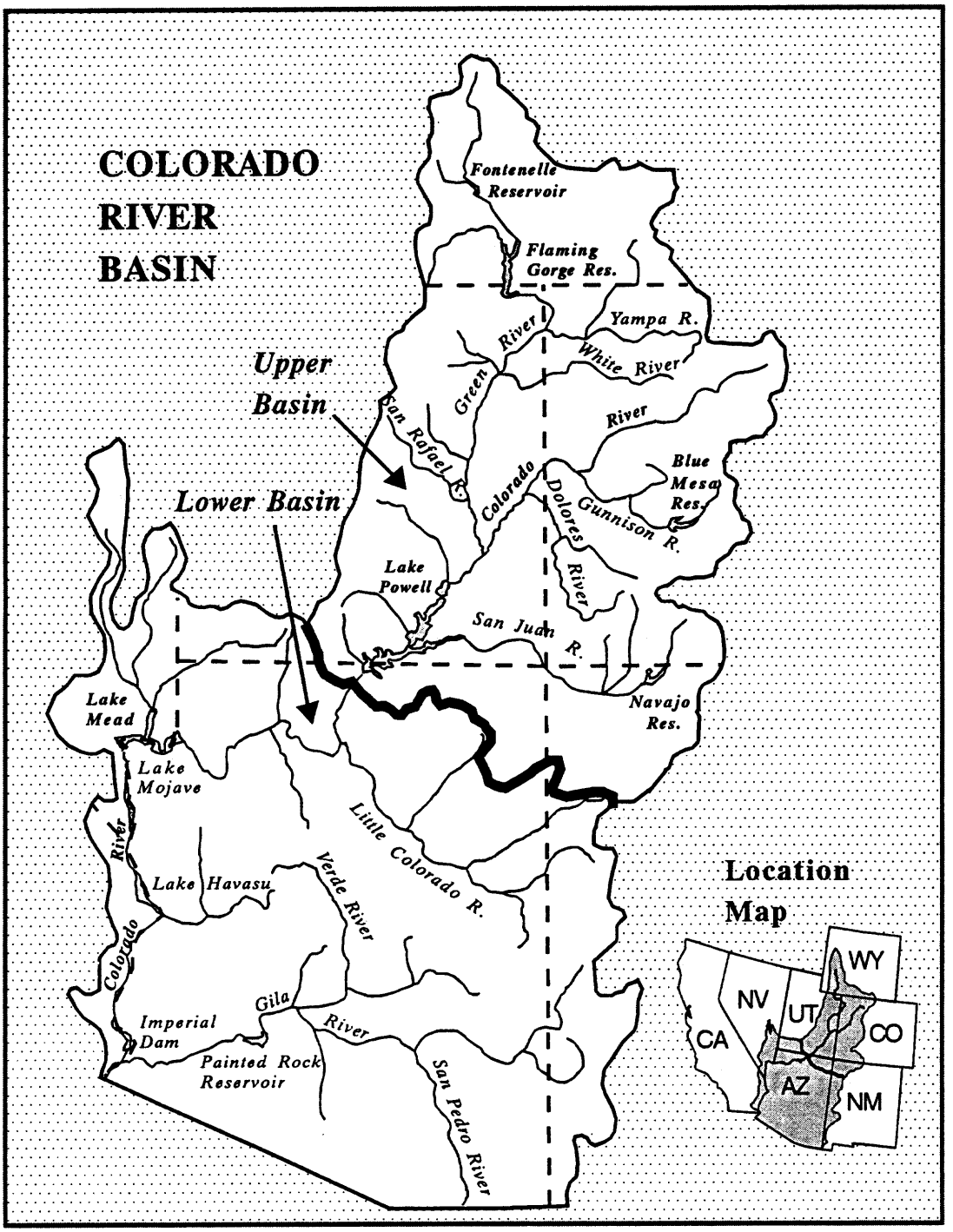
ANNUAL OPERATING PLAN
FOR
COLORADO RIVER RESERVOIRS
1994



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UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

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ANNUAL OPERATING PLAN FOR

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INTRODUCTION

Authority

This 1994 annual operating plan (AOP) was developed in accordance with Section 602 of *The Colorado River Basin Project Act* (Public Law 90-537), and the *Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of September 30, 1968* (Operating Criteria), promulgated by the Secretary of the Interior pursuant thereto and other applicable statutes. In accordance with *The Colorado River Basin Project Act* and the Operating Criteria, the AOP must be developed and administered consistent with applicable Federal laws, *The Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, Treaty Between the United States of America and Mexico*, signed February 3, 1944 (1944 Mexican Water Treaty), interstate compacts, court decrees, and other documents relating to the use of the waters of the Colorado River, which are commonly and collectively known as "The Law of the River."

The Operating Criteria and Section 602 of *The Colorado River Basin Project Act* mandate consultation with representatives of the Governors of the seven Basin States and the Upper Colorado River Commission in preparing the annual plan for operation of the Colorado River reservoirs. In addition, *The Grand Canyon Protection Act of 1992* (Title XVIII of Public Law 102-575) requires consultation to include the general public. Accordingly, the 1994 AOP was prepared by the Bureau of Reclamation (Reclamation) in consultation with the seven Basin States Governors' representatives; the Upper Colorado River Commission; appropriate Federal agencies; representatives of the academic and scientific communities, environmental organizations, and the recreation industry; contractors for the purchase of Federal power; others interested in Colorado River operations through the Colorado River Management Work Group, and the general public.

Purpose

The purposes of the AOP are to determine: (1) the projected operation of the Colorado River reservoirs to satisfy project purposes under varying hydrologic and climatic conditions; (2) the quantity of water considered necessary as of September 30, 1994, to be in storage in the Upper Basin reservoirs as required by Section 602(a) of *The Colorado River Basin Project Act*; (3) water available for delivery pursuant to the 1944 Mexican Water Treaty and Minute No. 242 of the International Boundary and Water

Commission, United States and Mexico (IBWC); (4) whether the reasonable consumptive use requirements of mainstream users in the Lower Division States will be met under a "normal," "surplus," or "shortage" condition as outlined in Article III of the Operating Criteria; and (5) whether water apportioned to, but unused by one or more Lower Division States exists and can be used to satisfy beneficial consumptive use requests of mainstream users in other Lower Division States as provided in the 1964 U.S. Supreme Court decree in *Arizona v. California*.

Consistent with the above determinations and in accordance with other provisions of "The Law of the River," the AOP was developed with "appropriate consideration of the uses of the reservoirs for all purposes, including flood control, river regulation, beneficial consumptive uses, power production, water quality control, recreation, enhancement of fish and wildlife, and other environmental factors" (Operating Criteria, Article I(2)).

Since the hydrologic conditions of the Colorado River Basin can never be completely known in advance, the AOP addresses the operations resulting from three different hydrologic scenarios: the probable maximum, most probable, and probable minimum reservoir inflow conditions. River operations under the plan are modified during the year as runoff predictions are adjusted to reflect existing snowpack, basin storage, and flow conditions.

Summary

Upper Basin Delivery. Sufficient water will be released from Glen Canyon Dam during water year 1994 to equalize, as nearly as practical, the active reservoir contents of Lakes Powell and Mead on September 30, 1994, in accordance with Article II(3) of the Operating Criteria unless the minimum objective release criterion in Article II(2) (10,150 MCM, equivalent to 8.230 MAF[1]) is controlling.

Lower Basin Uses. Taking into account that the reasonable beneficial consumptive use requirements of mainstream users in the Lower Division States are expected to be less than 9,250 MCM (7.500 MAF) and the existing and predicted water supply conditions in the basin, the "normal" condition is the criterion governing the operation of Lake Mead for calendar year 1994 in accordance with Article III(3)(a) of the Operating Criteria and Article II(B)(1) of the decree in *Arizona v. California*. If it becomes evident that water needs in the Lower Division States may exceed 9,250 MCM (7.500 MAF), the Secretary of the Interior will consult with interested parties regarding modification to this AOP.

Any Lower Division State will be allowed to utilize apportioned, but unused, water from another Lower Division State, in accordance with Article II(B)(6) of the decree in *Arizona v. California*, provided that the calendar year 1994 consumptive use by mainstream Lower Division States users does not exceed 9,250 MCM (7.500 MAF).

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[1] units of volume used in this document are million cubic meters (MCM), followed by equivalent million acre feet (MAF)

1944 Mexican Water Treaty Delivery. The guaranteed annual quantity of 1,850 MCM (1.500 MAF) of water will be delivered to Mexico during calendar year 1994 in accordance with Article 15 of the 1944 Mexican Water Treaty and Minute No. 242 of the IBWC.

Reservoir Operations. The technical studies based on the probable maximum reservoir inflow scenario and June 30, 1993, reservoir storage conditions project flood control releases from Hoover Dam in January, 1994, of 538 m^3/s (19,000 cfs)[2] and additional releases during November through December, 1994, to build the minimum required January 1, 1995, flood control space. The most probable reservoir inflow scenario does not project any required flood control releases from Hoover Dam in 1994.

Releases to avoid anticipated spills from Glen Canyon Dam are not expected, except for water supply assumptions greater than the probable maximum. Water releases from each of the Colorado River reservoirs will be in accordance with minimum flow requirements, reservoir operating criteria, and target storage elevations. The resulting operation will serve all authorized project purposes at each of the reservoirs.

1993 OPERATIONS SUMMARY AND RESERVOIR STATUS

Water year 1993 signalled the end of six years of drought within the basin. Basinwide precipitation during 1993 was well above average. The high precipitation also translated into a well above average snowpack. At the beginning of the runoff season basinwide snowpack was approximately 140 percent of average and above normal precipitation was received throughout most of the runoff season. A weather pattern of southerly storms developed during the snow accumulation season. As a result, the northern portion of the basin had average to slightly above average snowpack levels, and the central and southern portion of the basin had well above average snowpack levels. These factors combined to produce a near average runoff in the Green River, a 20 percent exceedance runoff (values exceeded 20 percent of the time) in the Gunnison and San Juan Basins, and a 25 percent exceedance inflow (values exceeded 25 percent of the time) into Lake Powell.

Even though snowpacks in the Gunnison and San Juan basins were similar to those during the 1983 water year, only minor flooding occurred because temperatures were fluctuating and adequate time was available to evacuate Blue Mesa and Navajo reservoirs as necessary. Minor flooding also occurred in the Jensen, Utah, area on the Green River just downstream of its confluence with the Yampa River.

Unregulated inflow into Lake Powell is expected to be 17,074 MCM (13.841 MAF), approximately 120 percent of the long term average, in water year 1993. This inflow,

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[2] units of flow used in this document are cubic meters per second (m^3/s), followed by equivalent cubic feet per second (cfs)

combined with the filling (or almost filling) of all upstream reservoirs and a 2,297 MCM (1.862 MAF) gain in storage in Lake Mead, is enough to eliminate most of the storage deficit that has accumulated over the 6 previous drought years. It is expected that over 8,680 MCM (7.036 MAF) of storage will be gained in water year 1993. It is now estimated that 2 normal flow years would completely fill the system. During 1993, all deliveries of water to meet obligations pursuant to "The Law of the River" were maintained. Tables 1(a) and 1(b) list the expected October 1, 1993, reservoir vacant space, live storage, water elevation, percent of capacity, change in storage, and change in elevation during water year 1993.

1994 WATER SUPPLY ASSUMPTIONS

For 1994 operations, three reservoir unregulated inflow scenarios were developed and analyzed and are labeled as probable maximum, most probable, and probable minimum. The attached graphs show these inflow scenarios and associated release patterns, end of month contents, and end of month elevations for each reservoir.

The National Weather Service Extended Streamflow Prediction (ESP) computer model uses current basin conditions as well as historical data to predict the range of possible future streamflows. The ESP model was employed to develop each inflow scenario, based on current soil moisture conditions within the basin. Although there is a wide confidence band associated with streamflow forecasts made a year in advance, the data are valuable in analyzing the possible impacts on project uses and purposes. Due to the above average year that was experienced in 1993, the soil moisture deficit has been erased and therefore the magnitude of inflows in the three scenarios are equal to the historical upper decile, mean, and lower decile (10 percent exceedance, 50 percent exceedance, and 90 percent exceedance, respectively) for each reservoir.

Based on the ESP model results, three different hydrologic scenarios were developed for each reservoir. The three inflow scenarios for Lake Powell are shown in Tables 2(a) and 2(b).

The volume of inflow resulting from these assumptions was used as input into Reclamation's monthly reservoir simulation model. This model is used to plan reservoir operations for the upcoming 12-month period. Projected water year 1994 inflow and June 30, 1993, reservoir storage conditions were used as input to this model and monthly releases were adjusted until release and storage levels accomplished project purposes and priorities.

Table 1(a). Expected Reservoir Conditions for October 1, 1993 (Metric Units)

Reservoir	Vacant Space (MCM)	Live Storage (MCM)	Water Elevation (meters)	Percent of Capacity (percent)	Change in Storage* (MCM)	Change in Elevation* (meters)
Fontenelle	53	381	1981.5	88	+ 147	+ 5.6
Flaming Gorge	417	4,208	1838.5	91	+ 376	+ 2.5
Blue Mesa	136	887	2288.1	87	+ 142	+ 4.2
Navajo	202	1,890	1851.4	90	- 58	- 1.0
Lake Powell	6,581	23,422	1116.7	78	+ 6,047	+ 12.4
Lake Mead	4,590	26,249	362.2	78	+ 2,297	+ 4.3
Lake Mohave	475	1,691	192.3	78	- 311	- 2.8
Lake Havasu	48	715	136.6	94	+ 39	+ .4
Totals	12,503	59,435	--	79	+ 8,680	--

Table 1(b). Expected Reservoir Conditions for October 1, 1993 (English Units)

Reservoir	Vacant Space (MAF)	Live Storage (MAF)	Water Elevation (feet)	Percent of Capacity (percent)	Change in Storage* (MAF)	Change in Elevation* (feet)
Fontenelle	.043	.309	6501	88	+ .119	+ 18
Flaming Gorge	.338	3.411	6032	91	+ .305	+ 8
Blue Mesa	.110	.719	7507	87	.115	+ 14
Navajo	.164	1.532	6074	90	- .047	- 3
Lake Powell	5.335	18.987	3664	78	+ 4.902	+ 41
Lake Mead	3.721	21.278	1188	78	+ 1.862	+ 14
Lake Mohave	.385	1.371	631	78	- .252	- 9
Lake Havasu	.039	.580	448	94	+ .032	+ 1
Totals	10.135	48.180	--	79	+ 7.036	--

* from October 1, 1992, to September 30, 1993

Table 2(a). Projected Unregulated Inflow
Into Lake Powell for Water Year 1994
(Metric Units: MCM)

Time Period		Probable Maximum	Most Probable	Probable Minimum
10/93-	12/93	1,982	1,574	1,142
1/94 -	3/94	1,924	1,561	1,119
4/94 -	7/94	15,926	9,991	5,486
8/94 -	9/94	2,002	1,528	1,036
10/94 -	12/94	1,600	1,600	1,600
WY	1994	21,835	14,654	8,782
CY	1994	21,452	14,680	9,241

Table 2(b). Projected Unregulated Inflow
Into Lake Powell for Water Year 1994
(English Units: MAF)

Time Period		Probable Maximum	Most Probable	Probable Minimum
10/93-	12/93	1.607	1.276	.926
1/94 -	3/94	1.560	1.265	.907
4/94 -	7/94	12.910	8.099	4.447
8/94 -	9/94	1.623	1.239	.840
10/94 -	12/94	1.297	1.297	1.297
WY	1994	17.700	11.880	7.120
CY	1994	17.390	11.900	7.491

1994 RESERVOIR OPERATIONS

Minimum instream flow levels have been established at several locations in the Upper and Lower Basins which are intended to preserve the present aquatic resources downstream of specific dams. The regulation of the Colorado River has had both positive and negative effects on aquatic resources. Controlled cool water releases from dams have provided for increased productivity of some aquatic resources and the development of significant sport fisheries. However, the same releases have been detrimental to endangered and other native species of fishes.

Consultations with the Fish and Wildlife Service in compliance with Section 7 of the Endangered Species Act (Section 7 consultations) on the operation of the Aspinall Unit on the Gunnison River, Navajo Dam on the San Juan River, and on Flaming Gorge on the Green River will continue in 1994. Studies associated with these consultations will be used to better understand the flow related needs of endangered and other native species of fish. Additionally, interim flow restrictions on releases from Lake Powell will continue in water year 1994 while the Glen Canyon Dam Environmental Impact Statement (GCDEIS) is being prepared.

Modifications to planned operations may be made based on changes in forecast conditions. However, due to the Recovery Implementation Programs for Endangered Fish Species in the Upper Colorado River Basin, Section 7 consultations, and other downstream concerns, modification to the monthly operation plans may not be based solely on changes in streamflow forecasts. Decisions on spring peak releases and downstream habitat target flows may be made midway through the runoff season. Reclamation and the Fish and Wildlife Service will initiate meetings with interested parties, including representatives of the basin states, to facilitate the decisions necessary to finalize site specific operations plans. All operations will be undertaken subject to the primary water storage and delivery requirements established by "The Law of the River", including Endangered Species Act compliance and other applicable statutes.

The following paragraphs discuss the operation of each of the reservoirs with respect to compact, decree, statutory, water delivery obligations, and instream flow needs for maintaining or improving aquatic resources, where appropriate.

Fontenelle Reservoir

Due to the effects of the previous six years of drought, the April through July runoff into the reservoir during water year 1993 was only 934 MCM (.757 MAF) or 89 percent of the long term average even though the snowpack within the basin at times was 130 percent of average. The Upper Green River was the only subbasin where inflows were near average in water year 1993. With near average inflows Fontenelle easily filled in 1993 and flows of up to 118.9 m^3/s (4,200 cfs) were released.

Because the mean annual inflow of 1,480 MCM (1.200 MAF) far exceeds the storage capacity of 426 MCM (.345 MAF), significant powerplant bypasses are expected under the most probable and maximum probable inflow scenarios. Additionally, there is little chance that the reservoir will not fill during water year 1994. In order to minimize spring high releases and to maximize downstream fishery resources and power production, the reservoir will probably be drawn down to minimum pool elevation 1970.1 m (6464 feet)[3] which corresponds to a volume of 115 MCM (.093 MAF) of live storage. While most of any powerplant bypass is generally the result of storage limitations, some powerplant bypass will likely result from operating to meet these fishery objectives.

To meet the above stated operational objectives, a constant release of approximately 25.5 to 39.6 m^3/s (900 to 1,400 cfs) will be made through the fall and winter months. Releases at this level will provide an appropriate level of reservoir drawdown for the 1994 runoff season, while ensuring that downstream water rights and municipal and industrial needs are met. Under all but the most adverse inflow assumption, the reservoir is expected to fill in the summer of 1994.

Flaming Gorge Reservoir

Water year 1993 unregulated inflow into Flaming Gorge Reservoir is expected to be 1,790 MCM (1.451 MAF) or 88 percent of the long term average. The April through July runoff was 1,276 MCM (1.034 MAF) or 85 percent of the long term average. With this near average inflow, Flaming Gorge is expected to gain approximately 376 MCM (.305 MAF) of storage in water year 1993.

In 1993, Flaming Gorge was operated in accordance with the Final Biological Opinion on the Operation of Flaming Gorge (FBOFG), issued in November, 1992. The FBOFG outlines the reservoir operations during the spring, summer, and early fall months which may provide an improved habitat for endangered endemic species of fish. To accommodate the FBOFG, releases of 121.8 m^3/s (4,300 cfs) were planned to be released from Flaming Gorge for four weeks in late May and early June to coincide with the peak flow of the Yampa River. However, due to the unexpected high runoff from the Yampa River, these releases were not maintained for the entire four weeks so that flooding in the Jensen, Utah, area could be minimized. During this period releases which were jointly agreed upon by Reclamation, the Fish and Wildlife Service, and Western Area Power Administration, were made so that flows in the Green River near Jensen would not exceed 566.4 m^3/s (20,000 cfs). After completion of the runoff, flows between 38.2 and 51.0 m^3/s (1,350 and 1,800 cfs) were maintained at the Green River near Jensen, Utah. Under the terms of the FBOFG, 1993 met the flow requirements for the high flow year.

In 1994 Flaming Gorge will again be operated in accordance with the FBOFG. If water year 1994 runoff is similar to the probable minimum, most probable, or probable maximum inflow scenarios; high spring releases for 1 to 2 weeks, 2 to 4 weeks, or in excess of 6

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[3] units of length used in this document are meters (m), followed by equivalent feet (feet)

weeks duration will be made respectively. Under all inflow scenarios, low stable flows between 31.2 and 51.0 m^3/s (1,100 and 1,800 cfs) will be maintained on the Green River near the Jensen, Utah, gaging station during the summer and fall months by adjusting Flaming Gorge releases. These operations for fishery objectives limit the powerplant peaking and regulating capability. Flaming Gorge is expected to fill in 1994 except under the probable minimum inflow scenario.

Water year 1994 will be the 3rd year of the 5 year study called for in the FBOFG to further determine the flow needs of the endangered fish during the spring and winter months.

Blue Mesa, Morrow Point, and Crystal Reservoirs (Aspinall Unit)

In water year 1993 the April through July runoff into the Aspinall Unit was 1,218 MCM (.987 MAF) or 136 percent of the long term average. Water year 1993 unregulated inflow is expected to be 1,552 MCM (1.258 MAF) or 115 percent of average. With this level of inflow approximately 527 MCM (.427 MAF) of water bypassed the powerplant at Crystal, but no bypasses occurred at Blue Mesa or Morrow Point. Releases of up to 169.9 m^3/s (6,000 cfs) occurred at Crystal with flows in the river below the tunnel in excess of 152.9 m^3/s (5,400 cfs). Even with the high level of runoff (approximately the same as in 1984), major flooding did not occur because there was adequate time to draw down Blue Mesa. Large fluctuations in releases on a daily and hourly basis were avoided. Blue Mesa easily filled in water year 1993.

Section 7 consultation with the Fish and Wildlife Service on the operation of the Aspinall Unit was continued in 1993. As part of this consultation, a 5 year plan to study the effect of various release patterns on habitat and possibly on the reproductive success and reintroduction of endangered fish in the Gunnison River was outlined. Water year 1993 was the second year of this 5 year study and met the goals of the high release year.

Additionally, the Aspinall Unit was operated as if the draft contract between Reclamation, the National Park Service, and the State of Colorado to deliver water from the Aspinall Unit to the Black Canyon of the Gunnison National Monument was in place. The operation was also coordinated with the Fish and Wildlife Service and others interested in the operation of the Aspinall Unit.

For water year 1994 operations, Blue Mesa Reservoir will be drawn down to at least an elevation of 2283.0 m (7490 feet) by December 31, 1993, in order to minimize icing problems in the Gunnison River. Blue Mesa will continue to be drawn down through April, 1994, to a level that will accommodate the most probable inflow scenario and accomplish the release objectives with minimum powerplant bypasses at Crystal.

The minimum release objective of the unit is to meet the delivery requirements of the Uncompahgre Valley Project and to keep a minimum of 8.5 m^3/s (300 cfs) flowing through the Black Canyon of the Gunnison National Monument. If the 8.5 m^3/s (300 cfs) minimum objective can not be maintained due to low inflow and storage conditions, the release may be

reduced to 5.7 m^3/s (200 cfs). Under all but the most adverse inflow scenarios, Blue Mesa is expected to fill in the summer of 1994 and flows through the Black Canyon of the Gunnison National Monument are expected to be above the minimum release objective during the summer months. The filling of the reservoir next year will ensure that reasonable specific releases required to study the protection and improvement of habitat for endangered fish can be accommodated. The forecast runoff for the spring of 1994 will be monitored to achieve these objectives. To protect the blue ribbon trout fishery in the Black Canyon and maximize recreation potential, releases during 1994 will be planned to minimize large fluctuations in the daily and monthly flows. These operations to reduce flow fluctuations limit the capability of *The Colorado River Storage Project Act* powerplants to respond to changes in electrical demand in the region.

Navajo Reservoir

The April through July unregulated inflow into Navajo Reservoir in water year 1993 was 1,188 MCM (.963 MAF) or 145 percent of average. Water year 1993 unregulated inflow is expected to be 1,663 MCM (1.348 MAF) or 141 percent of average. In order to accommodate the high spring inflow, releases were increased in late February, reached 127.4 m^3/s (4,500 cfs) in early March, and were maintained at that level through May 1. During the first part of May it became apparent that inflow was not going to be as high as forecast and releases were reduced to 42.5 m^3/s (1,500 cfs) until June 2, 1993, when releases for endangered fish were initiated. Navajo Reservoir nearly filled in July, 1993.

Section 7 consultation with the Fish and Wildlife Service for the operation of Navajo Dam was continued in 1993. Water year 1993 was the third year of a 7 year study to evaluate alternative operations of Navajo Reservoir to benefit endangered fish. In accordance with this 7 year study, spring operations of Navajo were modified in 1993 and large releases of up to 127.4 m^3/s (4,500 cfs) were made during the first part of June to coincide with the peak flows of the Animas River to study the effect of large spring flows on the habitat improvement and spawning success of endangered endemic species of fish. Due to this operation, flows of over 311.5 m^3/s (11,000 cfs) were achieved at the confluence of the Animas River with the San Juan near Farmington, New Mexico. This flow was less than the estimated safe channel capacity of 339.8 m^3/s (12,000 cfs), so that no major flooding occurred on the San Juan River. After the completion of the large spring releases, flows were reduced to approximately 17.0 m^3/s (600 cfs). The objective was to maintain a minimum release of 14.2 m^3/s (500 cfs) from the reservoir to meet downstream demands and to preserve the blue ribbon sport fishery located immediately downstream of the reservoir. The release of 14.2 m^3/s (500 cfs) is an objective only and is not a minimum flow requirement.

In 1994, Navajo Reservoir is expected to nearly fill except under the probable minimum inflow scenario. Releases from the reservoir will be held near 14.2 m^3/s (500 cfs) through the fall and winter months and large releases will be made in May and June in order to study measures to improve the habitat and provide better spawning conditions for endangered fish in the San Juan River. Under the probable minimum inflow scenario, releases of

approximately 160 MCM (.130 MAF) would be made from Navajo Reservoir during the winter months in order to conserve storage. Additionally, specific releases will be made from the reservoir in order to study habitat requirements of the endangered fish.

Lake Powell

The previous 6 lowest consecutive years of inflow on record (1987-1992) reduced the storage in Lake Powell by 12,089 MCM (9.800 MAF). However, due to a 25 percent exceedance inflow in 1993, it is expected that over 8,688 MCM (7.043 MAF) of storage will be gained in the entire Colorado River storage system and that Lake Powell will gain approximately 6,047 MCM (4.902 MAF) of storage. Lake Powell is expected to finish water year 1993 at an elevation of 1116.8 m (3664 feet) and storage of 23,422 MCM (18.987 MAF), about 78 percent of capacity. The reservoir storage is projected to continue to decline through the fall and winter, reaching a seasonal low in April, 1994, at an elevation of 1114.7 m (3657 feet) and 22,394 MCM (18.153 MAF) of storage.

During water year 1994, releases greater than the minimum release objective of 10,150 MCM (8.230 MAF) will be made in order to equalize the storage between Lakes Powell and Mead except under the minimum probable inflow scenario. Under the most probable inflow conditions, approximately 10,567 MCM (8.566 MAF) will be released from the reservoir and approximately 2,687 MCM (2.178 MAF) of storage will be gained. Under the probable maximum inflow scenario, approximately 14,538 MCM (11.785 MAF) will be released during the water year. This will include releases of 708.0 m^3/s (25,000 cfs) for an extended period of time. With the large gain in storage in 1993, it is estimated that it will take 2 years of average inflow to fill the reservoir.

The interim flow restrictions on the daily and hourly releases from Glen Canyon implemented in August, 1991, (shown in Table 3) will continue during water year 1994. These interim flow restrictions are designed to minimize any damage to downstream resources until a Record of Decision is made on the GCDEIS. Specific modifications to the flow restrictions have been proposed for water year 1994 and are the subject of consultation under the *Grand Canyon Protection Act of 1992*. Suggested modifications include increasing the allowable ascending ramp rate from 70.8 m^3/s (2500 cfs) to 113.3 m^3/s (4000 cfs) per hour and the allowable maximum flow from 566.4 m^3/s (20,000 cfs) to 708.0 m^3/s (25,000 cfs). A monitoring program has been implemented to measure the effect of interim flow restrictions on downstream resources.

Based on a recommendation from the cooperating agencies of the GCDEIS, a high steady release for research purposes may be scheduled from Glen Canyon Dam for one to two weeks during water year 1994, possibly in early April. The product of the discharge and duration of this research release will not exceed 617 MCM (.500 MAF) in addition to the releases otherwise scheduled for the same one to two weeks period. Total releases during this period would exceed powerplant capacity (940.2 m^3/s or 33,200 cfs) only if determined implementable from legal and scientific perspectives. If this determination is made, consultation will occur. This research release will be designed to facilitate the study of the

effects of high steady releases on backwaters, beaches, vegetation and wildlife. Coordination within Reclamation between Operations and Maintenance will insure that unit maintenance does not impair use of all eight units at Glen Canyon during the period of high sustained releases.

Table 3. Glen Canyon Dam interim flow restrictions

Parameter	(m^3/s)	(cfs)	conditions
Maximum flow [4]	566.4	20,000	
Minimum flow	141.6	5,000	nighttime
	226.6	8,000	7:00 am to 7:00 pm
Ramp rates			
ascending	70.8	2,500	per hour
descending	42.5	1,500	per hour
Daily fluctuations [5]	141.6 / 226.6	5,000 / 8,000	

Lake Mead

The "normal" condition will govern the operation of Lake Mead, however, if it becomes evident that water needs in the Lower Division States may exceed 9,250 MCM (7.500 MAF), the Secretary of the Interior will consult with interested parties regarding modification to the AOP. The outlook for lowest and highest monthly releases under the most probable inflow conditions for calendar year 1994 will be 695 MCM (.563 MAF) and 1,171 MCM (.949 MAF) respectively.

Lake Mead is expected to finish calendar year 1993 at 26,214 MCM (21.250 MAF), which is 78 percent of capacity and approximately 9.6 m (31 feet) below the top of the conservation pool at 371.7 m (1220 feet) and 31,922 MCM (25.877 MAF). Reservoir storage elevation is projected to rise to 362.5 m (1189 feet) in February 1994, which is 78 percent of capacity or

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[4] to be evaluated and potentially increased as necessary and in years when delivery to the Lower Basin exceeds 10,150 MCM (8.23 MAF)

[5] daily fluctuations limit of 141.6 m^3/s (5,000 cfs) for months with release volumes less than 740 MCM (.600 MAF), 169.9 m^3/s (6,000 cfs) for monthly release volumes of 740 to 990 MCM (.600 to .800 MAF) and 226.6 m^3/s (8,000 cfs) for monthly volumes over 990 MCM (.800 MAF)

26,429 MCM (21.424 MAF) and approximately 9.2 m (30 feet) below the top of the conservation pool. Storage elevation is projected to decline to 361.0 m (1184 feet) in June 1994, which is 76 percent of capacity or 25,592 MCM (20.746 MAF) and approximately 10.7 m (35 feet) below the top of the conservation pool.

Drawdown during the peak largemouth bass spawning period in April and May is planned to be near the limits of decline recommended in the July 1982 final report of a 5 year study by the Arizona Game and Fish Department and the Nevada Department of Wildlife. Under the most probable inflow scenario, no flood control releases are scheduled for 1994, but in future years, as Lake Mead refills and flood control releases are again required by the Hoover Dam Flood Control Regulations, consideration will be given to making these releases over the fall and winter months to avoid high flow releases during the January through July runoff season. This distribution of water reduces the chance of bypassing hydroelectric powerplants below Hoover Dam and avoids the adverse impacts of higher flood control releases on fish and wildlife, recreation, water quality, and river stabilization.

Lakes Mohave and Havasu

Mohave and Havasu Reservoirs are scheduled to be drawn down in the fall and winter months to provide storage space for local storm runoff and will be filled in the spring to meet higher summer water needs. This drawdown will also correspond with maintenance at both Davis and Parker Powerplants which is scheduled for September through February. The normal filling pattern of these two reservoirs coincides well with the fishery spawning period. Since lake elevation will be typical of previous years, normal conditions are expected for boating and other recreational uses.

Reclamation is the lead agency in the Native Fish Work Group (NFWG), a multi-agency group of scientists attempting to replenish the stock of endangered razorback suckers occupying Lake Mohave. Adult fish were collected from the lake and stocked into Yuma Cove where rearing of razorback suckers was successful. These fish spawned and over 300 juveniles were removed in the fall, about 150 of the which were tagged and released into the reservoir and the remainder were placed in Davis Cove for further grow-out. This area also received 10,000 fingerling razorback suckers from Dexter National Fish Hatchery. These fish are growing and should be released in the fall of 1993.

The most significant accomplishment for NFWG and Lake Mohave razorback suckers was the recapture of five of the 1992 reared fish during a multi-agency fishery survey of spawning suckers in March 1993. Four of the five fish recaptured were ripe males averaging 36 cm (14 inches) long. All four were captured in spawning areas along with other ripe adults.

Central Arizona Project
Information on New Waddell Dam Operations

A key feature of the Central Arizona Project (CAP) is New Waddell Dam and Reservoir. This reservoir is located just northwest of the Phoenix metropolitan area and will serve as the primary regulatory storage facility for the CAP. Colorado River water will be pumped into and released from the reservoir via the Waddell Pumping-Generating Plant (P-G Plant). The P-G Plant consists of four 2-speed pump-generator units and four adjustable-speed pumping units. New Waddell Dam and P-G Plant will allow most of CAP's Colorado River water entitlement to be pumped into the Phoenix area and stored during the winter months when energy and water needs are low, and then released for delivery in the summer months when energy and water needs are high. Revenues associated with marketing of power available due to this operating plan are an important part of Central Arizona Water Conservation District's financial plan. Firm power contracts for peaking power have been executed for a major portion of the available electrical capacity normally used for pumping.

The dam and P-G Plant are scheduled to be fully operational in 1995, but initial pump tests and reservoir filling began in the fall of 1992. Pump and generator testing continued through 1993, with the goal of completing all tests before the summer of 1994. In order to facilitate electrical and mechanical testing; including high-head pumping, high-speed generation, and evaluation of right abutment grouting (all required for New Waddell construction contract completion); the active conservation storage space in New Waddell Reservoir must be virtually full. To complete this testing before the summer of 1994, Central Arizona Water Conservation District will have to pump at or near maximum CAP system capacity through January, 1994. This will result in a full reservoir available for completion of all testing through February and March. During April through September, it is anticipated that most CAP water needs downstream from the New Waddell turnout will be satisfied with CAP water stored in New Waddell Reservoir. Beginning in October, 1994, Colorado River water will be pumped through the CAP system into New Waddell Reservoir for use during the summer of 1995. Total 1994 CAP diversions from the Colorado River are not expected to exceed 616 MCM (.500 MAF).

Senator Wash and Laguna Reservoirs

Water storage operations at Senator Wash Reservoir allow regulation of water deliveries to United States irrigation agencies and Mexico. The reservoir is operated to prevent Colorado River flows from exceeding Mexican Treaty requirements at Morelos Dam; and to reduce these excess flows when practicable during rainstorms or other unusual events. Operational objectives at and below Laguna Dam are to conserve water, control sediment, and to maintain the river channel.

Releases from Imperial Dam are reregulated by Laguna Reservoir to maintain river flows downstream near Yuma. Laguna releases combined with agricultural seepage and drainage provide a continuous live stream serving recreational and fish and wildlife purposes from Laguna Dam to Morelos Dam. Occasionally higher than normal releases are required from

Laguna Dam due to excess water from rain flooding upstream, or from rejected water orders due to rain. These higher releases serve to maintain the river channel capacity. This occasional practice reduces channel maintenance expense without impairment of water conservation or power production.

Gila River Flows

The calendar year 1993 scheduled delivery to Mexico is 1,850 MCM (1.500 MAF) in accordance with Article 15 of the 1944 Mexican Water Treaty and Minute No. 242 of the IBWC. Total calendar year 1993 delivery is expected to be 5,551 MCM (4.500 MAF) due to flood control releases from the Corps of Engineers' Painted Rock Dam on the Gila River. Releases from Painted Rock Dam peaked at 736.3 m^3/s (26,000 cfs) in February. Subsequently, discharges were incrementally reduced, until the first of July, when discharge volumes reached 62.3 m^3/s (2,200 cfs). Releases will remain at 62.3 m^3/s (2,200 cfs) until the end of December at which time the reservoir will have been evacuated. Of the 1,678 MCM (1.360) MAF scheduled for delivery during calendar year 1993 at the Northerly International Boundary, as much as 1,079 MCM (.875 MAF) will have been delivered from the Gila River; consequently, a like amount of Colorado River mainstem water will be retained in Lake Mead for future use.

The high flows on the Gila River damaged the saline water bypass channel used to meet the salinity requirements of Minute 242 for the Mexican water deliveries. The bypass channel will be sufficiently repaired to divert pumped drainage water from the Gila River channel by December to continue meeting the salinity requirements as the Gila River flows end.

Yuma Desalting Plant

The Yuma Desalting Plant will not be operated for the remainder of calendar year 1993 due to damage sustained by the Wellton Mohawk Main Conveyance Canal, Main Outlet Drain, and Main Outlet Drain Extension reaches of the pumped drainage channel from Gila River flooding. Funding for operation of the plant is available for fiscal year 1994. However, due to the repairs required upon the reaches described above, the desalting plant will not be able to operate until April, 1994, at the earliest. If the plant is operated during fiscal year 1994 it will be at one third capacity.

During 1993, the salinity differential defined in Minute 242 of the IBWC is anticipated to be met by releases from Painted Rock Reservoir of sufficient volume to prevent adverse salinity impacts at Morelos Dam. These releases are necessary to overcome salinity that is resulting from the direct discharge of Wellton-Mohawk Irrigation and Drainage District pumped drainage into the Gila and Colorado Rivers.

During 1994, the salinity requirements of the Minute will be met by diverting the Wellton-Mohawk pumped drainage into the Main Outlet Drain Extension near the Colorado and Gila River confluence. Should the desalting plant be made operational, the water recovered will be returned to the Colorado River, and hence reduce the amount bypassed.

1994 DETERMINATIONS

The AOP provides guidance regarding reservoir storage and release conditions during the upcoming year, based upon congressionally mandated storage, release, and delivery criteria and determinations. After meeting these requirements, specific reservoir releases may be modified as forecast inflows change in response to climatic variability and to provide additional benefits to the projects' multiple purposes.

Upper Basin Reservoirs

The Operating Criteria provide that the annual plan of operation shall include a determination of the quantity of water considered necessary to be in Upper Basin storage at the end of the water year. Taking into consideration all relevant factors required by the Operating Criteria, it has been determined that the active storage in Upper Basin reservoirs forecast for September 30, 1994, exceeds the storage required under Section 602(a) of the *Colorado River Basin Project Act* under any reasonable range of assumptions which might be applied. Therefore, "602(a) Storage" is not the criterion controlling the release of water from Glen Canyon Dam during water year 1994.

Section 602(a)(3) of the *Colorado River Basin Project Act* provides for the storage of Colorado River water in Upper Basin reservoirs that the Secretary of the Interior finds necessary to assure deliveries to comply with Articles III(c) and III(d) of the 1922 *Colorado River Compact*, without impairment to the annual consumptive use in the Upper Basin. The Secretary is required to make this determination after consultation with the Upper Colorado River Commission and representatives from the three Lower Division States, and after taking into consideration all relevant factors including, historic stream flows, the most critical period of record, the probabilities of water supply, and estimated future depletions. Water not required to be so stored will be released from Lake Powell:

- to the extent it can be reasonably applied in the states of the Lower Division to the uses specified in Article III(e) of the 1922 *Colorado River Compact*, but these releases will not be made when the active storage in Lake Powell is less than the active storage in Lake Mead,

- to maintain, as nearly as practicable, active storage in Lake Mead equal to the active storage in Lake Powell, and

- to avoid anticipated spills from Lake Powell.

Glen Canyon Dam will be operated to release sufficient water during water year 1994 to equalize, as nearly as practical, the active reservoir contents of Lakes Powell and Mead on September 30, 1994, in accordance with Article II(3) of the Operating Criteria, unless the minimum objective release criterion of Article II(2) is controlling. If the minimum objective

release criterion is controlling, Glen Canyon Dam will be operated to release 10,150 MCM (8.230 MAF) during water year 1994. Under the most probable water supply assumption, Glen Canyon Dam will release a total of 10,662 MCM (8.643 MAF). Releases to avoid anticipated spills are not expected, except for water supply assumptions greater than the probable maximum.

Lower Basin Reservoirs

Water shall be released or pumped from Lake Mead to meet the following requirements:

(a) 1944 Mexican Water Treaty obligations;
(b) Reasonable beneficial consumptive use requirements of mainstream users in the Lower Division States;
(c) Net river losses;
(d) Net reservoir losses;
(e) Regulatory wastes.

The Operating Criteria provide that after the commencement of delivery of mainstream water by means of the CAP, the extent to which the reasonable beneficial consumptive use requirement of mainstream users in the Lower Division States is met is to be determined by the Secretary of the Interior. The reasonable beneficial consumptive use requirements are met depending on whether a "normal," "surplus," or "shortage" condition has been determined. The "normal" condition is defined as annual pumping and release from Lake Mead sufficient to satisfy 9,250 MCM (7.500 MAF) of consumptive use in accordance with Article III(3)(a) of the Operating Criteria and Article II(B)(1) of the in *Arizona v. California.*

Taking into account that the reasonable beneficial consumptive use requirements of mainstream users in the Lower Division States are expected to be less than 9,250 MCM (7.500 MAF) and the existing and predicted water supply conditions in the basin, the "normal" condition is the criterion governing the operation of Lake Mead for calendar year 1994 in accordance with Article III(3)(a) of the Operating Criteria and Article II(B)(1) of the decree in *Arizona v. California.* If it becomes evident that water needs in the Lower Division States may exceed 9,250 MCM (7.500 MAF), the Secretary of the Interior will consult with interested parties regarding modification to this AOP.

Nothing in the decree in *Arizona v. California* prohibits the Secretary of the Interior from releasing water apportioned, but unused, in any Lower Division State for that year for consumptive use in any other Lower Division State. No rights to the recurrent use of such water accrue by reason of the use of such water. In light of this provision and in accordance with Article II(B)(6) of the decree, any Lower Division State will be allowed to utilize apportioned, but unused, water from another Lower Division State in calendar year 1994 to the extent that the total annual consumptive use by mainstream users in the Lower Division States does not exceed 9,250 MCM (7.500 MAF).

Reclamation acknowledges that there are instances of unauthorized use of mainstream water in the Lower Basin. An unauthorized use means any diversion or use of Colorado River water without an entitlement to use the water or use which is not in conformance with an entitlement. Reclamation is attempting to bring such uses into compliance with the law. Concurrent with this effort, Reclamation is engaged in developing formalized rules for administering entitlements to Colorado River water in the Lower Colorado River Basin. The codification of such rules will enhance Reclamation's ability to eliminate unauthorized uses which cannot be legitimized by providing a procedure to take action against identified unauthorized users. Reclamation expects final rules to be published by January, 1995.

The Lower Colorado River Accounting System is being evaluated and developed in coordination with the development of the rules for administering entitlements. This water-use accounting system allows for the complete accounting of diverted Colorado River water, having the capability to credit diverters with unmeasured subsurface return flow. The current accounting procedure generally credits only surface return flow. The final determination of the operational feasibility of the Lower Colorado River Accounting System is anticipated to be made in 1995.

1944 Mexican Water Treaty

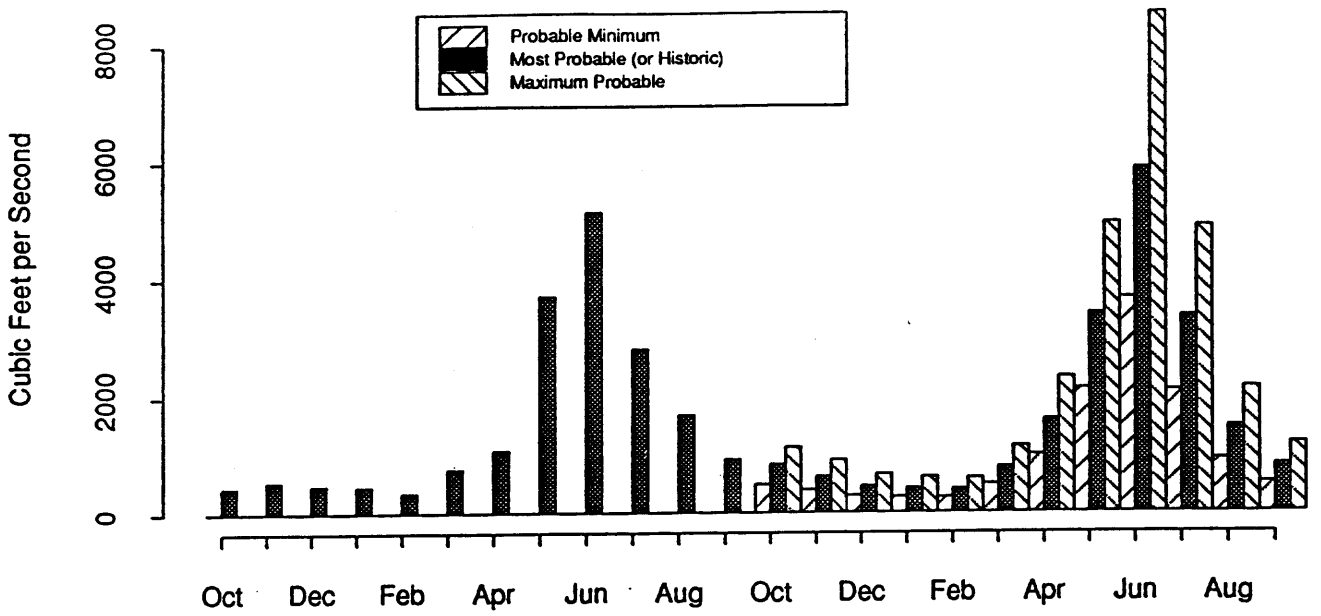
Pursuant to the 1944 Mexican Water Treaty it has been determined that the guaranteed quantity of 1,850 MCM (1.500 MAF) of water will be delivered to Mexico during calendar year 1994. The delivery of 1,850 MCM (1.500 MAF) of water to Mexico will be in accordance with Article 15 of the 1944 Mexican Water Treaty and Minute No. 242 of the IBWC. Minute No. 242 provides that the United States may deliver up to 170 MCM (.140 MAF) of water across the land boundary at San Luis, Sonora, and in the limitrophe section of the Colorado River downstream of Morelos Dam, in partial satisfaction of the 1944 Mexican Water Treaty. Calendar year schedules of monthly deliveries of Colorado River water are formulated by the Mexican Section of the IBWC and presented to the United States Section before the beginning of each calendar year. Additional scheduled deliveries to Mexico can only be made if there exists Colorado River water in excess of the amount necessary to supply all uses within the United States and the guaranteed quantity of 1,850 MCM (1.500 MAF) annually to Mexico.

DISCLAIMER

Nothing in this Annual Operating Plan is intended to interpret the provisions of *The Colorado River Compact* (45 Stat. 1057), *The Upper Colorado River Basin Compact* (63 Stat. 31), *The Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, Treaty Between the United States of America and Mexico* (Treaty Series 994, 59 Stat. 1219), the United States/Mexico agreement in Minute No. 242 of August 30, 1973, (Treaty Series 7708; 24 UST 1968), the Decree entered by the Supreme Court of the United States in *Arizona v. California* et al. (376 U.S. 340), *The Boulder Canyon Project Act* (45 Stat. 1057), *The Boulder Canyon Project Adjustment Act* (54 Stat. 774; 43 U.S.C. 618a), *The Colorado River Storage Project Act* (70 Stat. 105; 43 U.S.C. 620), *The Colorado River Basin Project Act* (82 Stat. 885; 43 U.S.C. 1501), *The Colorado River Basin Salinity Control Act* (88 Stat. 266; 43 U.S.C. 1951), *The Hoover Power Plant Act of 1984* (98 Stat. 1333), *The Colorado River Floodway Protection Act* (100 Stat. 1129; 43 U.S.C. 1600), or *The Reclamation Projects Authorization and Adjustment Act of 1992* (106 Stat. 4669).

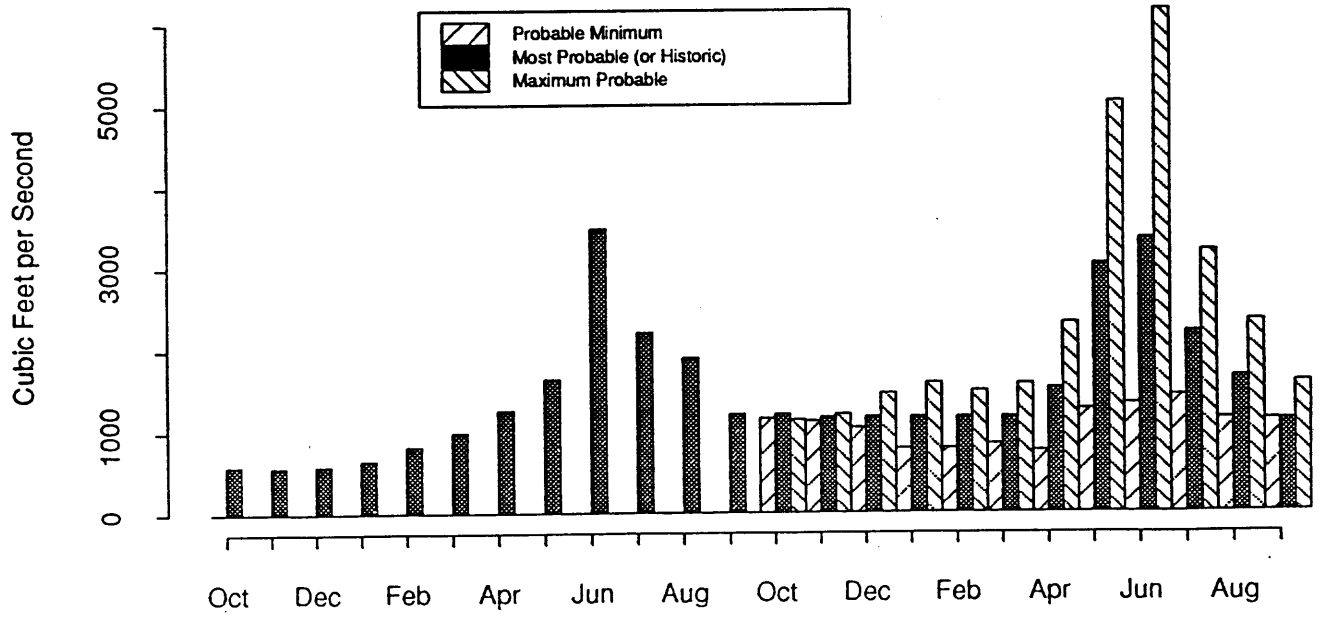
Fontenelle Reservoir

Fontenelle Monthly Inflow



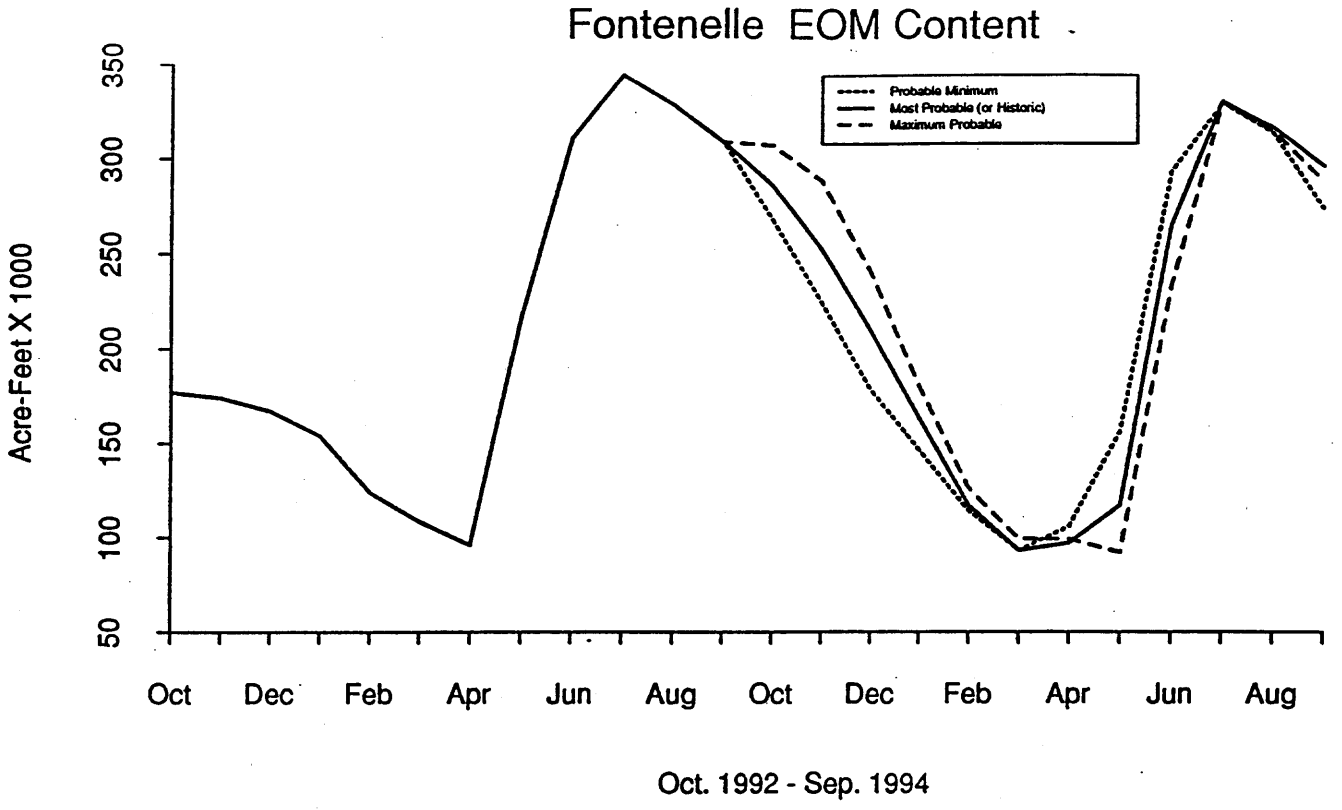
Oct 1992-Sept 1994

Fontenelle Monthly Release

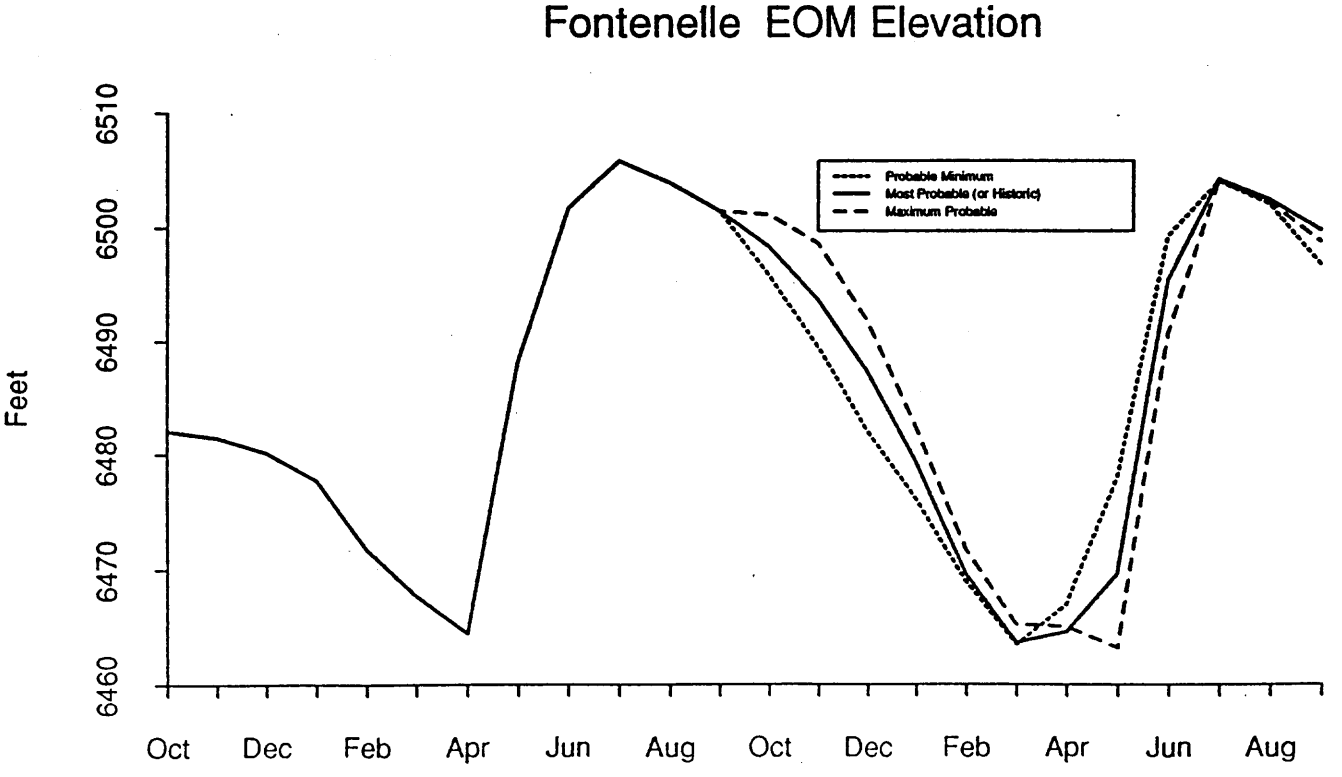


Oct 1992-Sept 1994

Fontenelle Reservoir



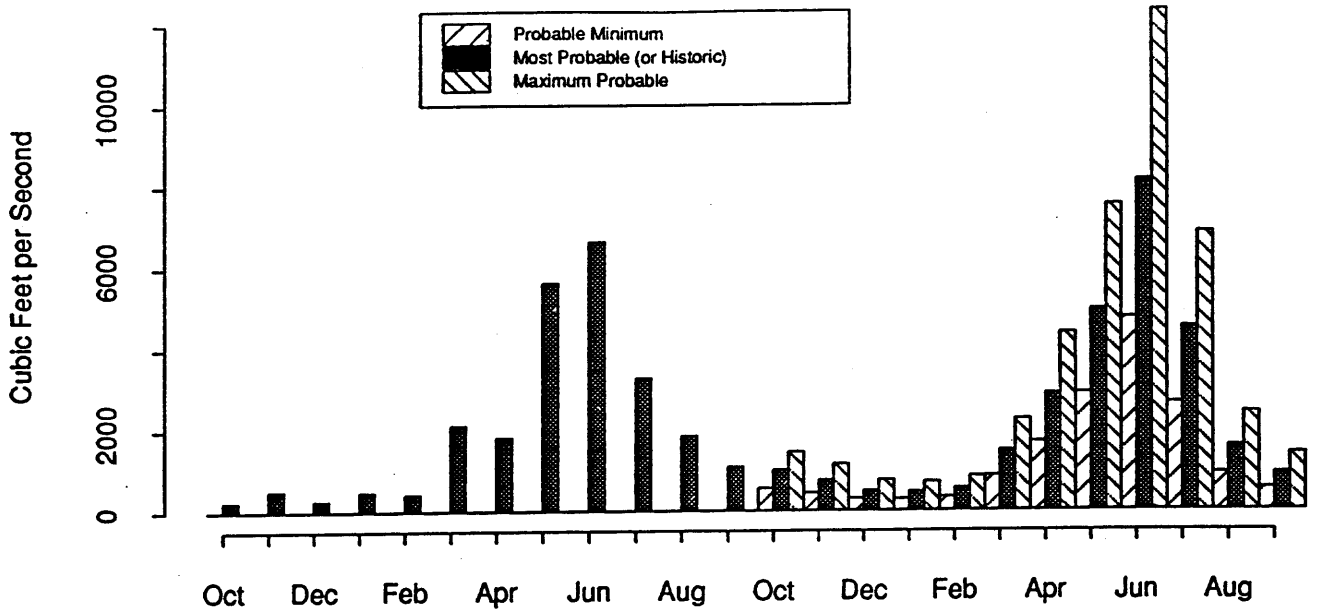
Oct. 1992 - Sep. 1994



Oct. 1992 - Sep. 1994

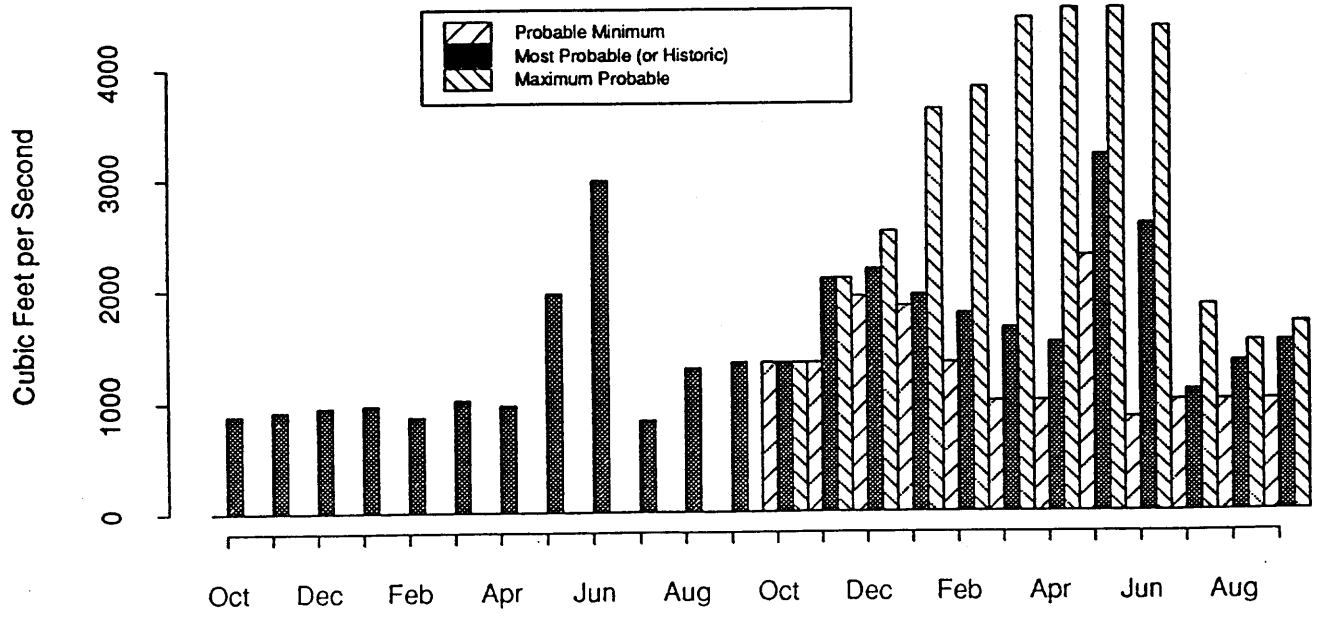
Flaming Gorge Reservoir

Flaming Gorge Monthly Inflow



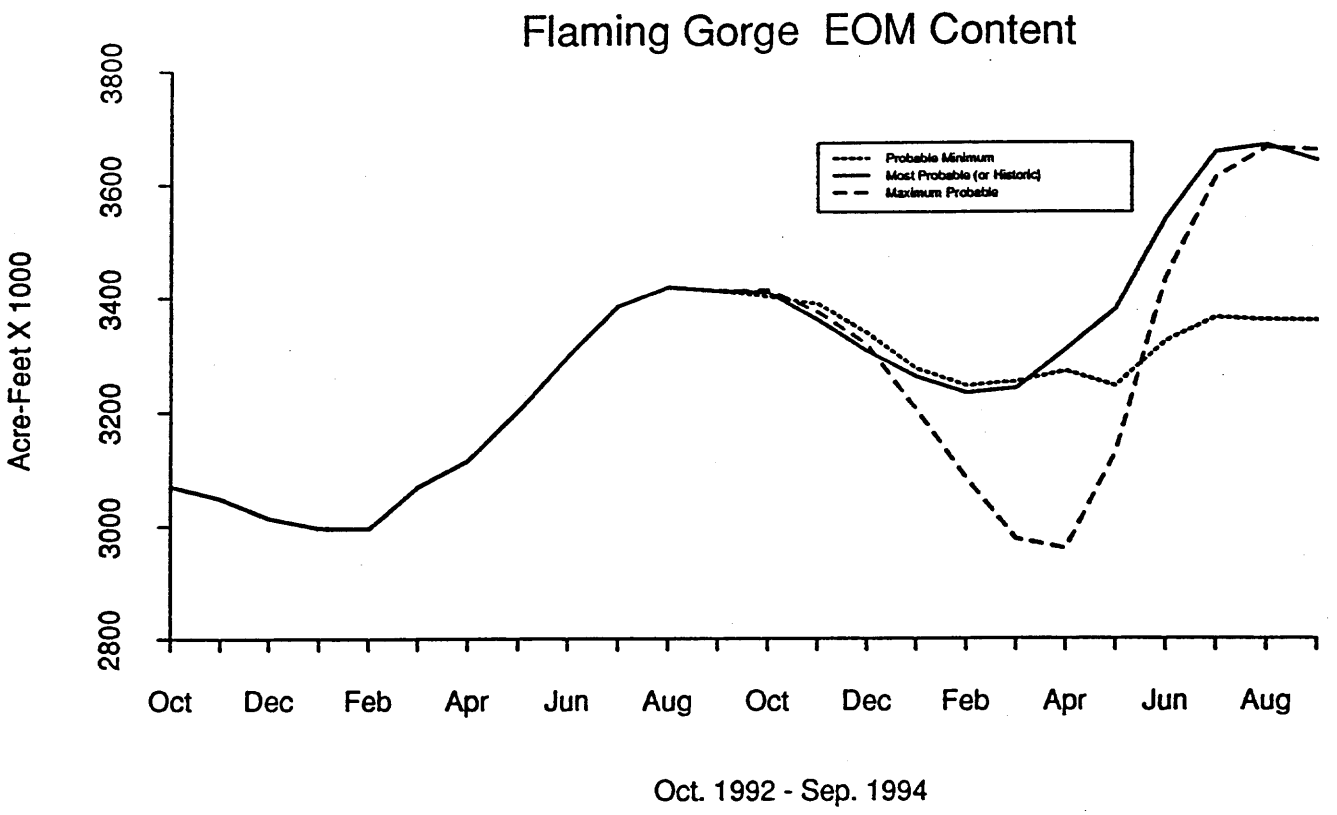
Oct 1992-Sept 1994

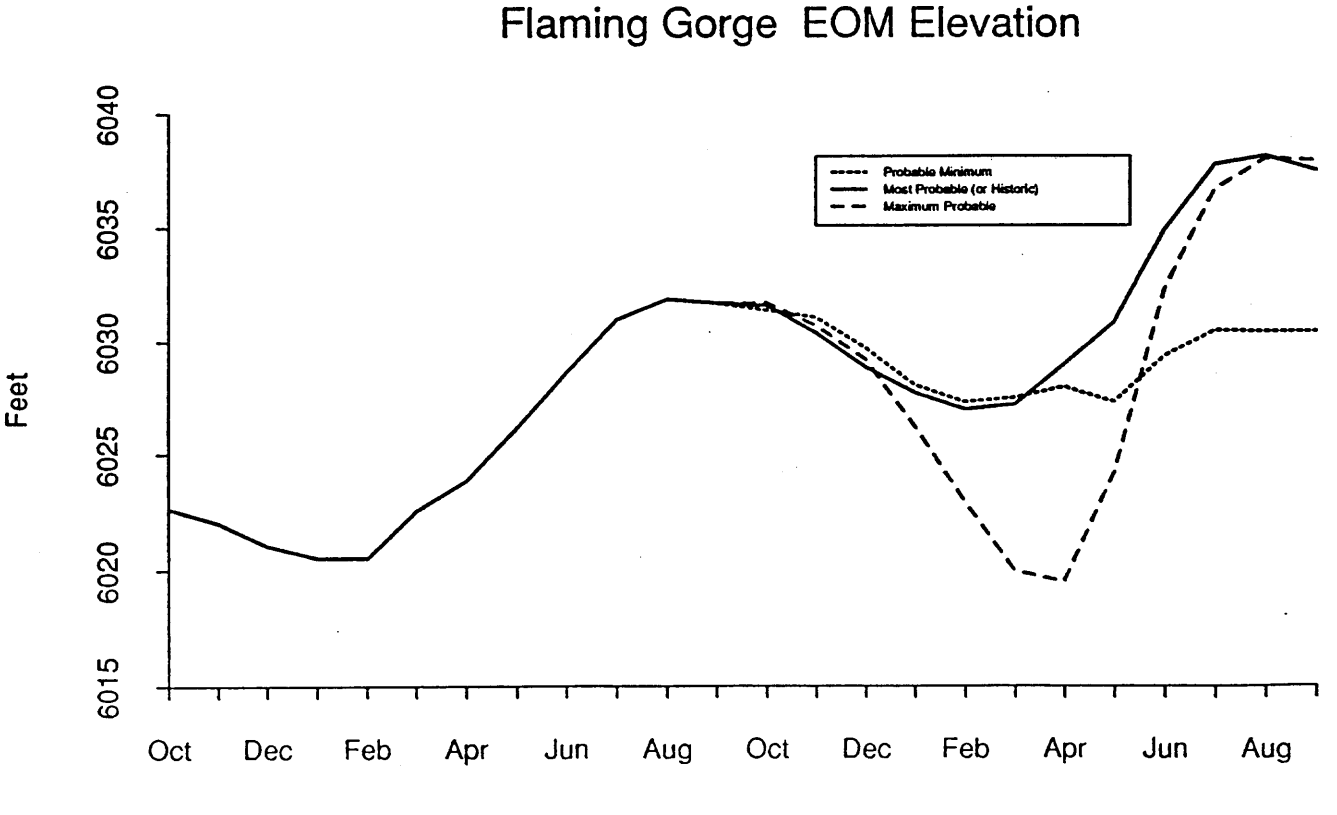
Flaming Gorge Monthly Release



Oct 1992-Sept 1994

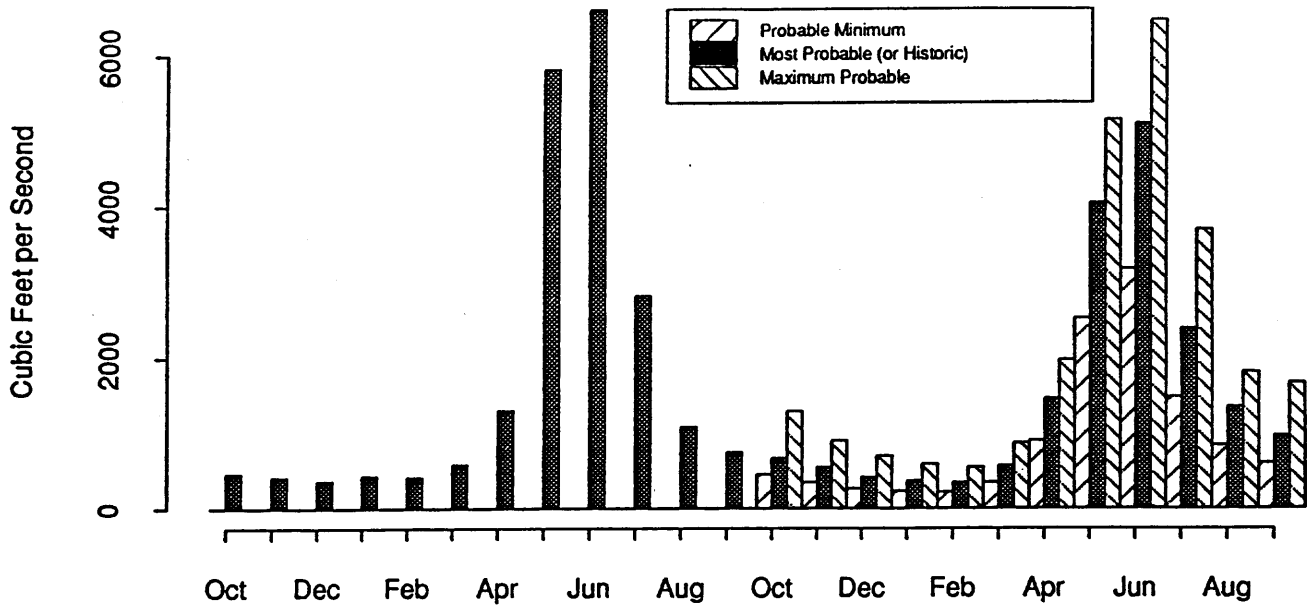
Flaming Gorge Reservoir





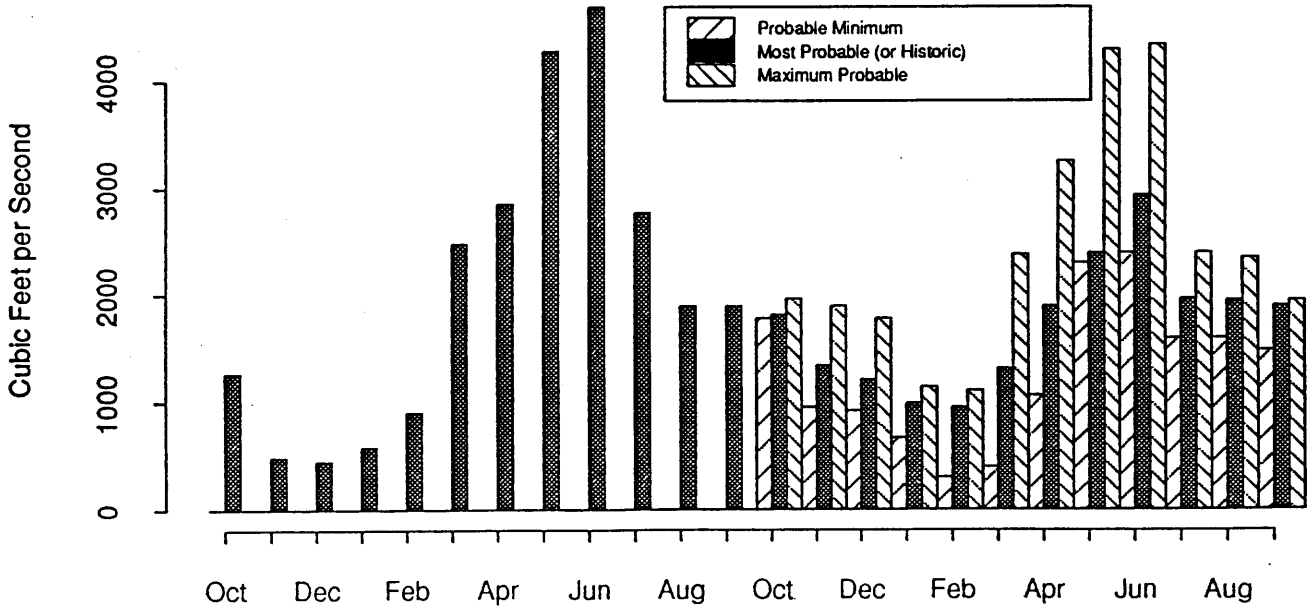
Aspinall Unit

Blue Mesa Monthly Inflow



Oct 1992-Sept 1994

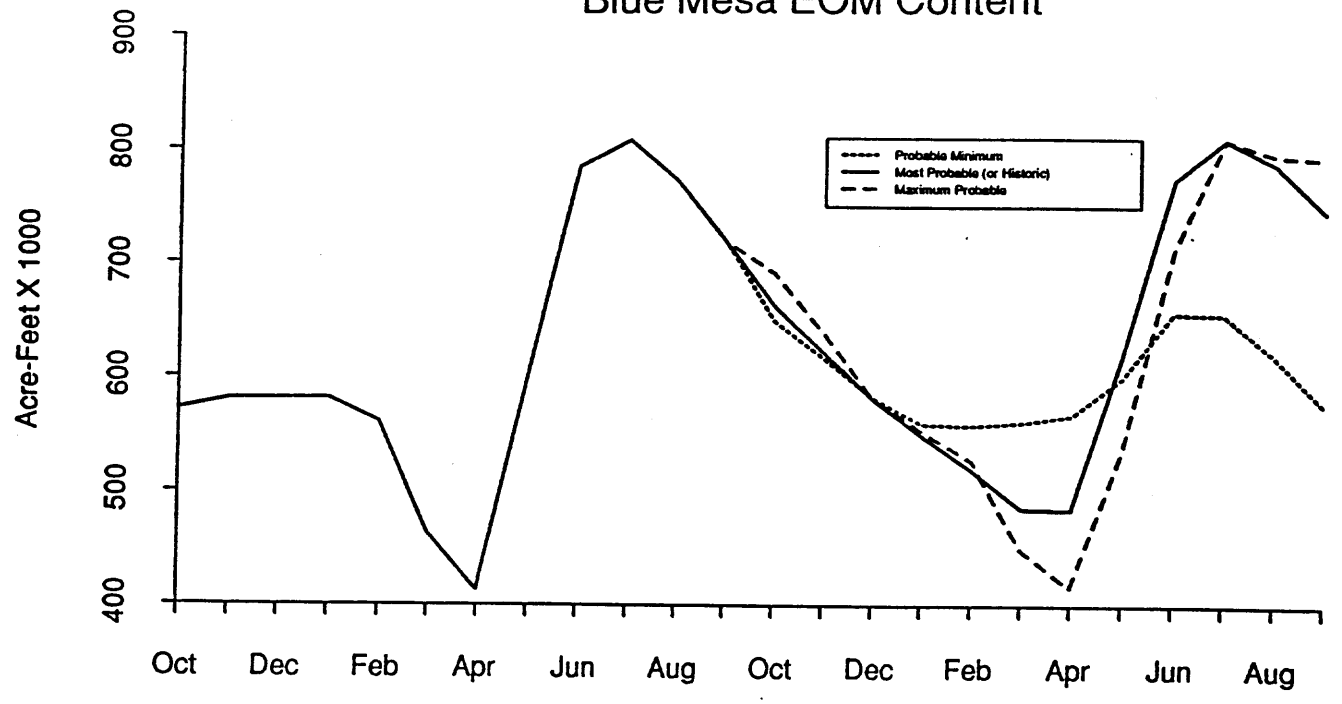
Crystal Monthly Release



Oct 1992-Sept 1994

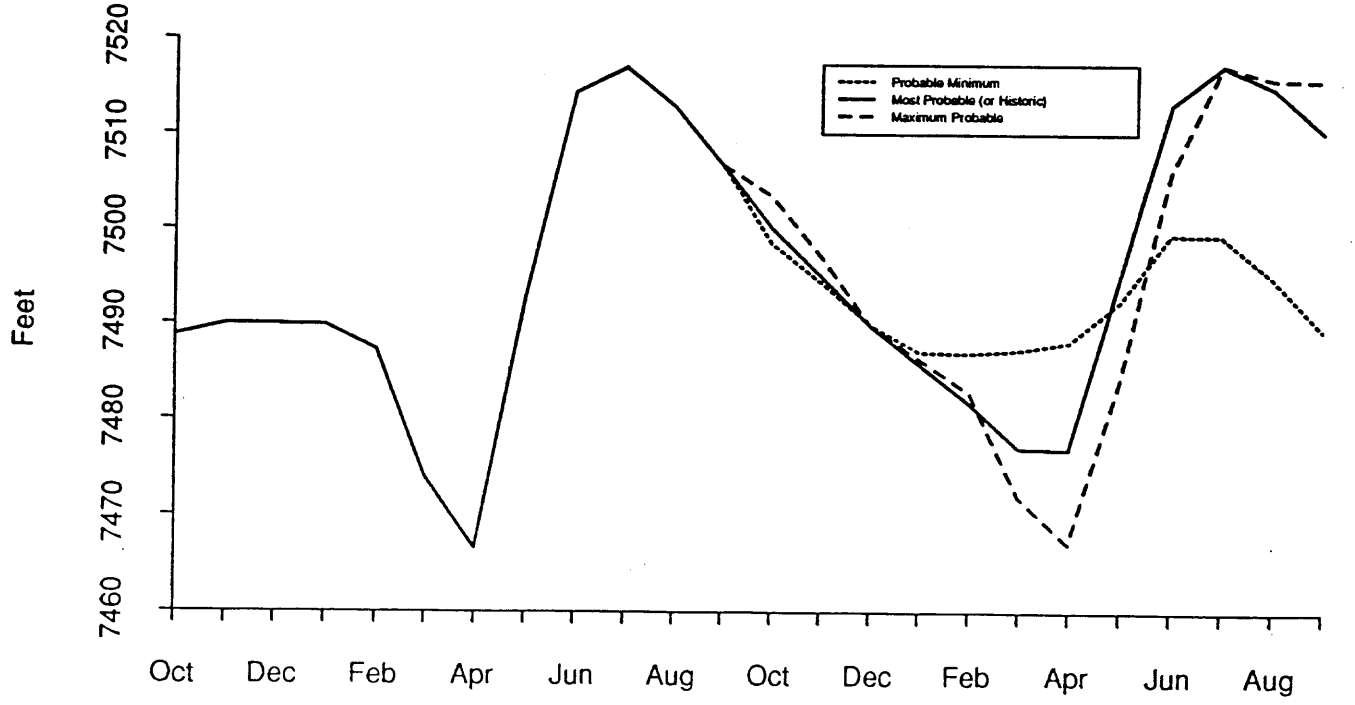
Aspinall Unit

Blue Mesa EOM Content



Oct. 1992 - Sep. 1994

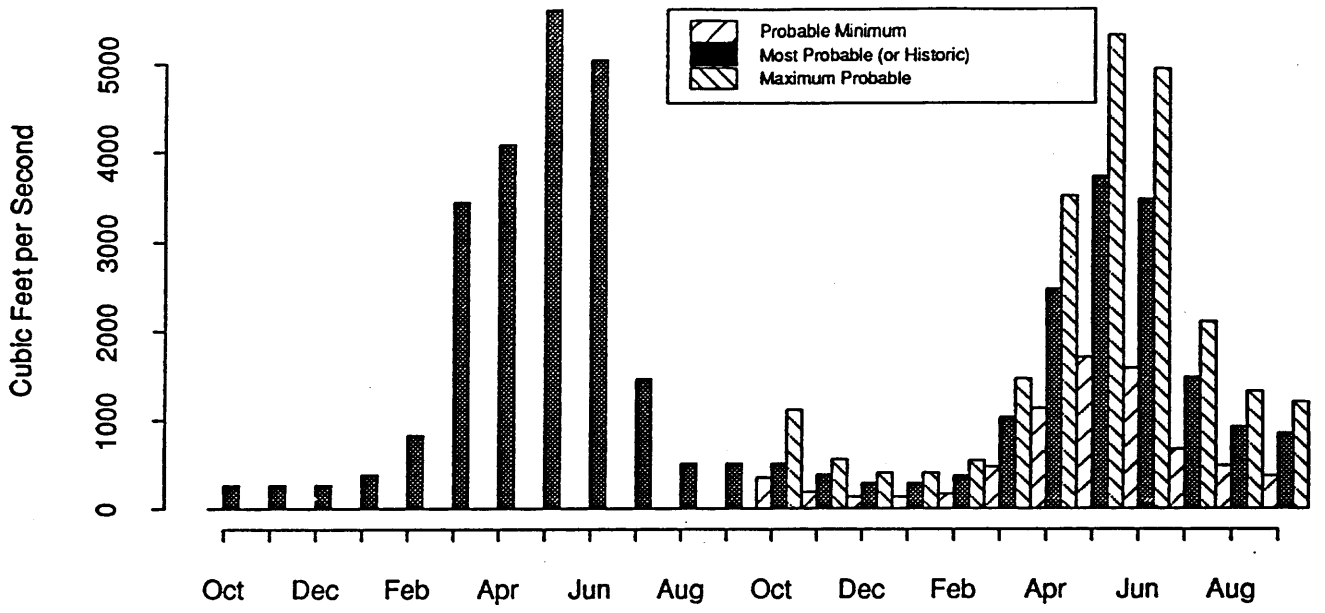
Blue Mesa EOM Elevation



Oct. 1992 - Sep. 1994

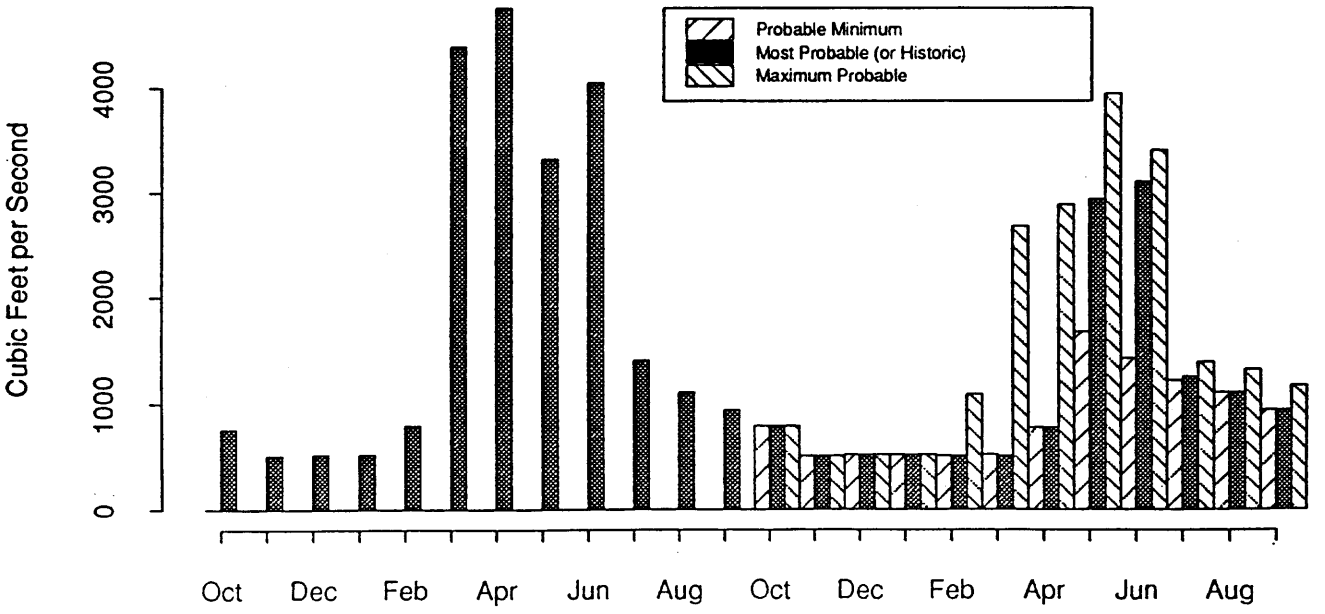
Navajo Reservoir

Navajo Monthly Inflow



Oct 1992-Sept 1994

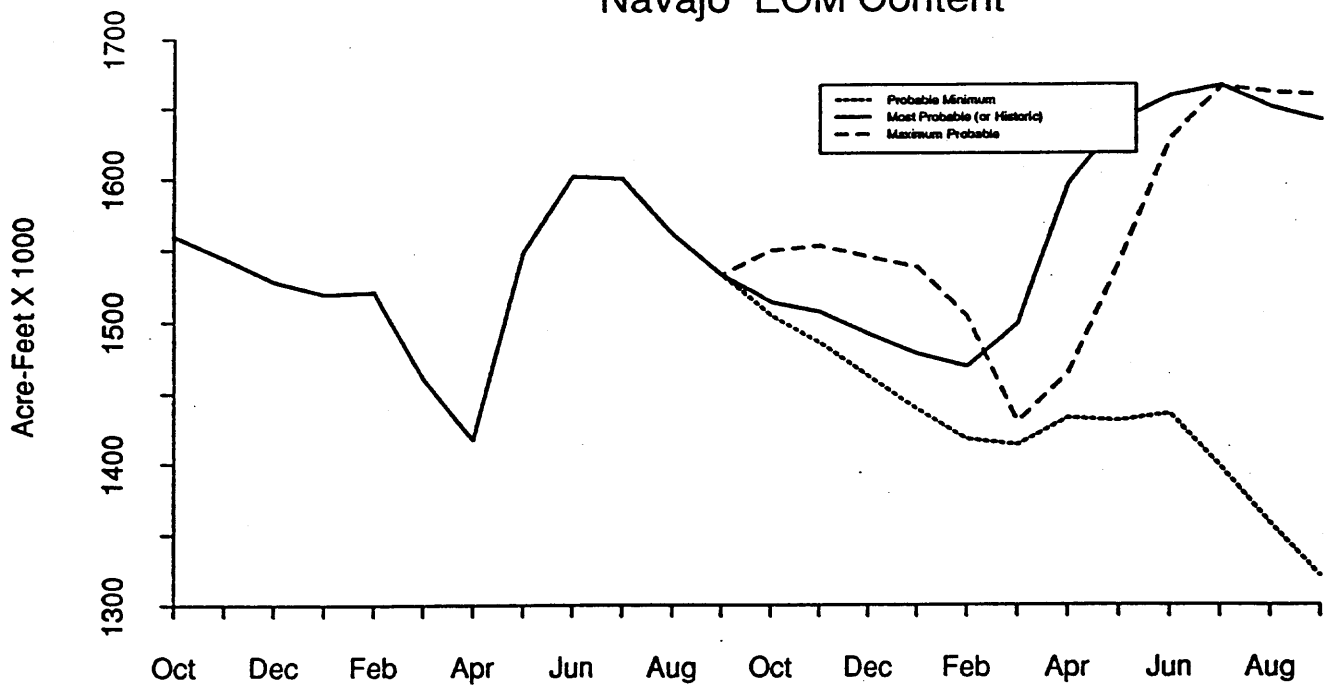
Navajo Monthly Release



Oct 1992-Sept 1994

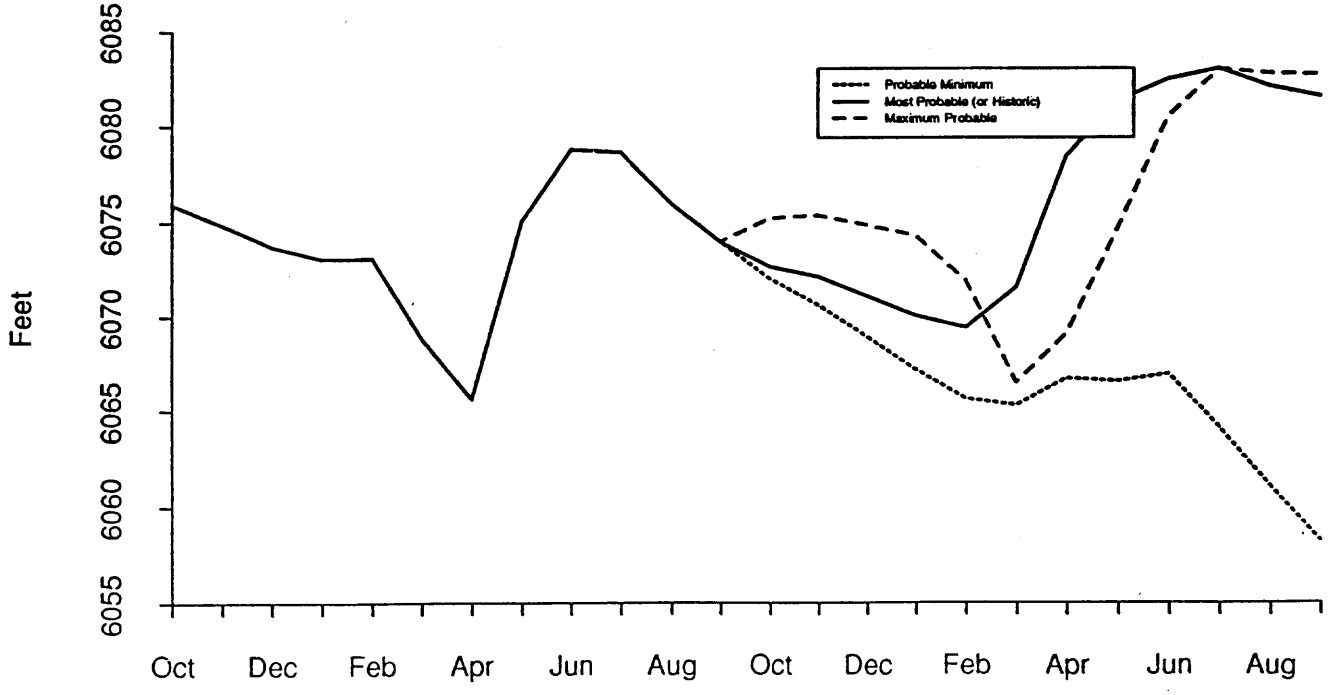
Navajo Reservoir

Navajo EOM Content



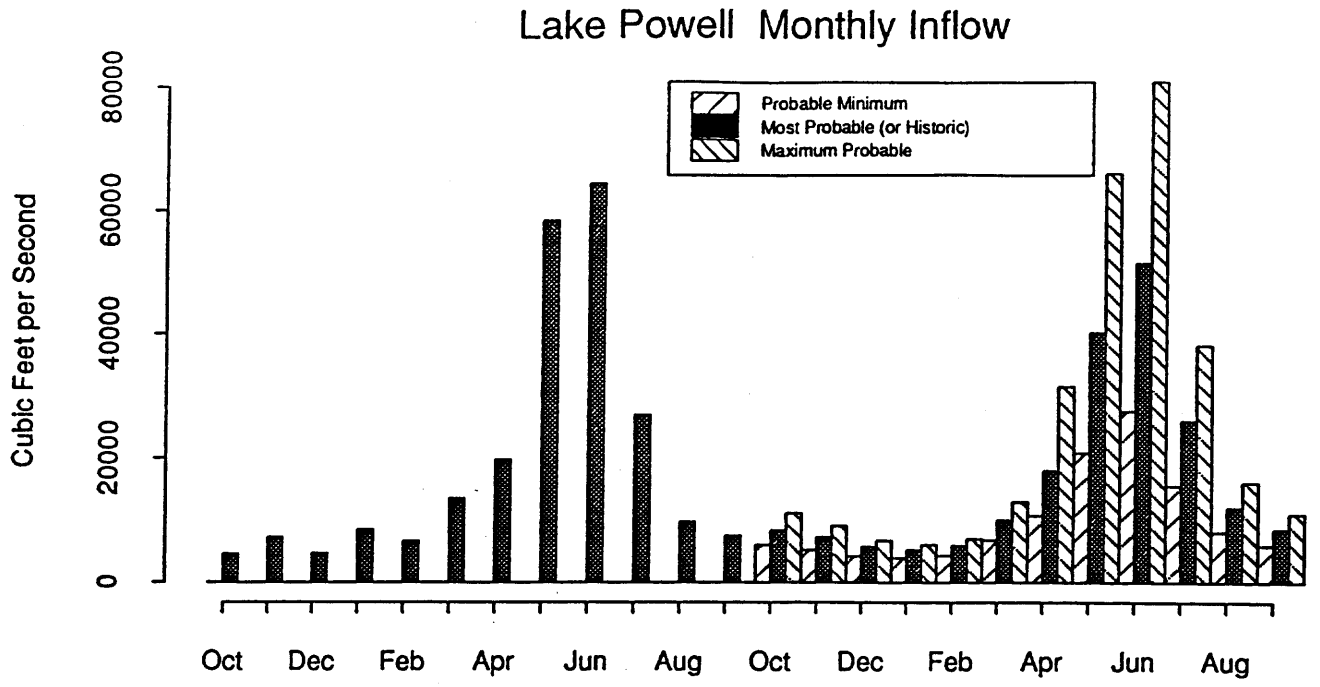
Oct. 1992 - Sep. 1994

Navajo EOM Elevation



Oct. 1992 - Sep. 1994

Lake Powell



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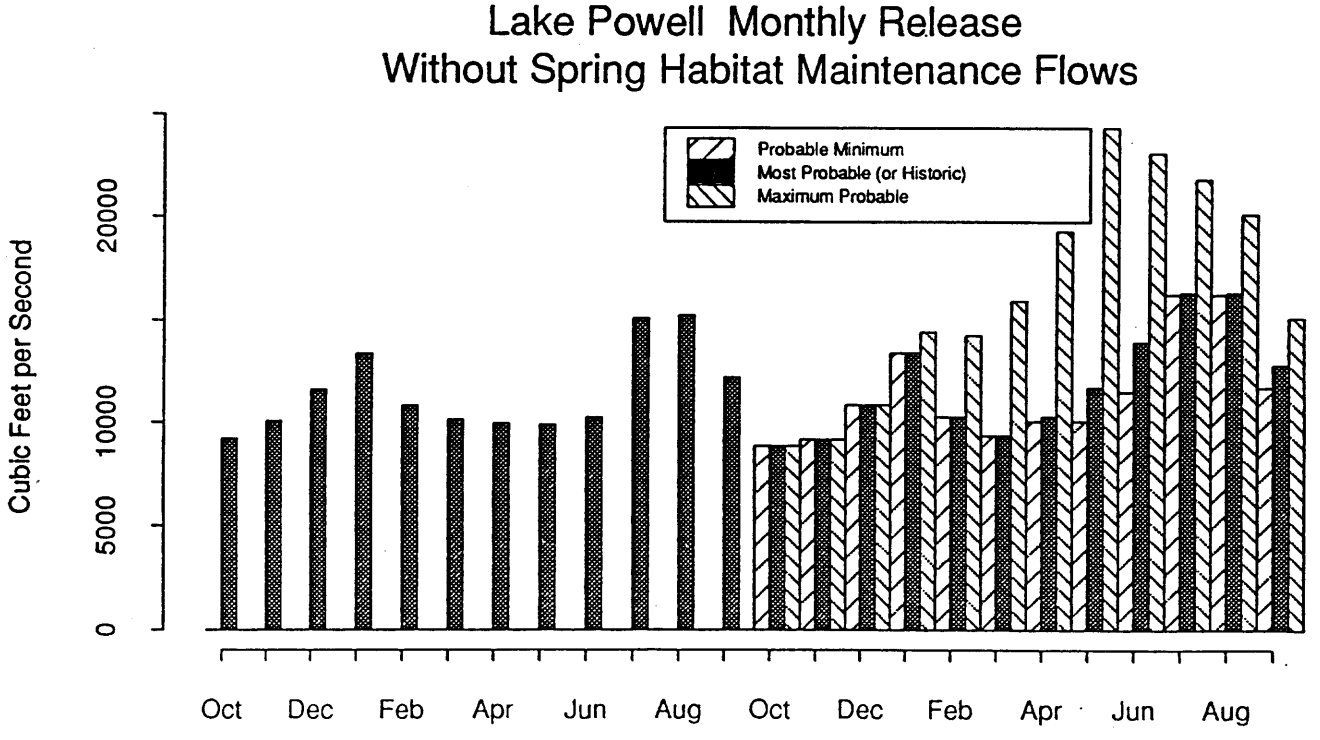
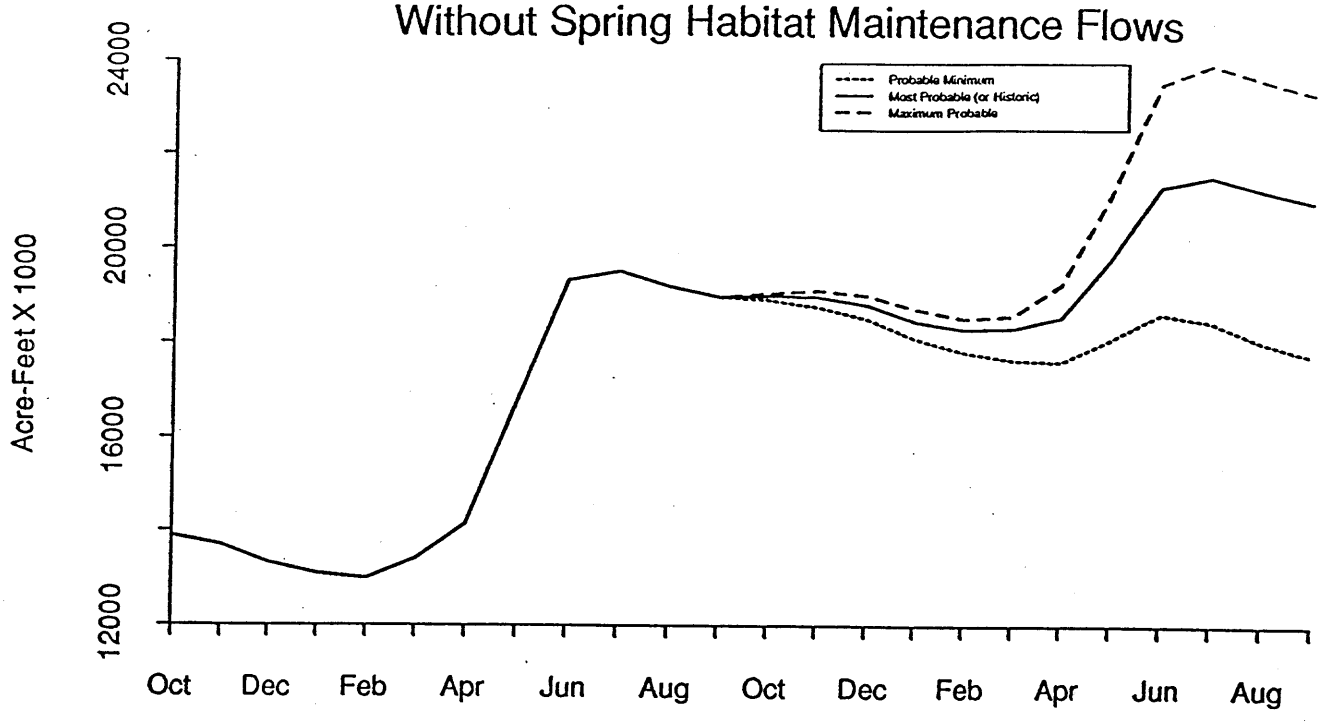


Oct 1992-Sept 1994

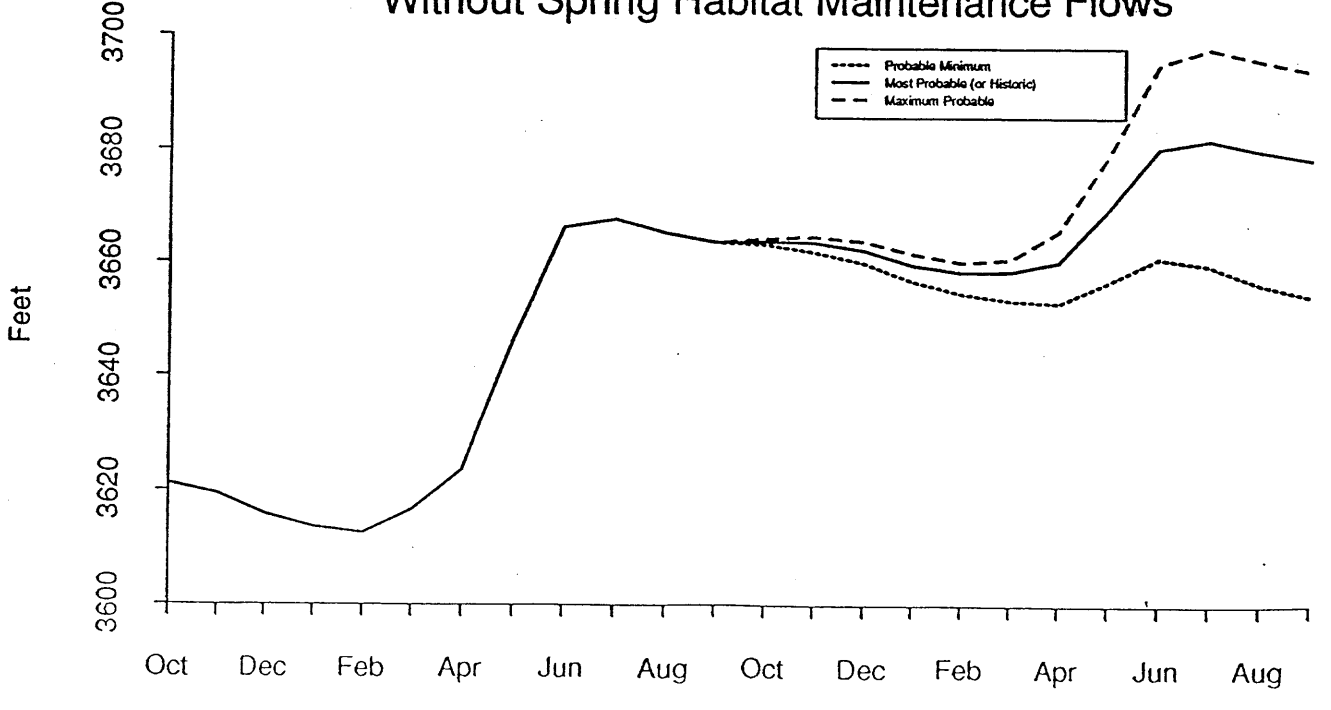
Lake Powell

Lake Powell EOM Content
Without Spring Habitat Maintenance Flows



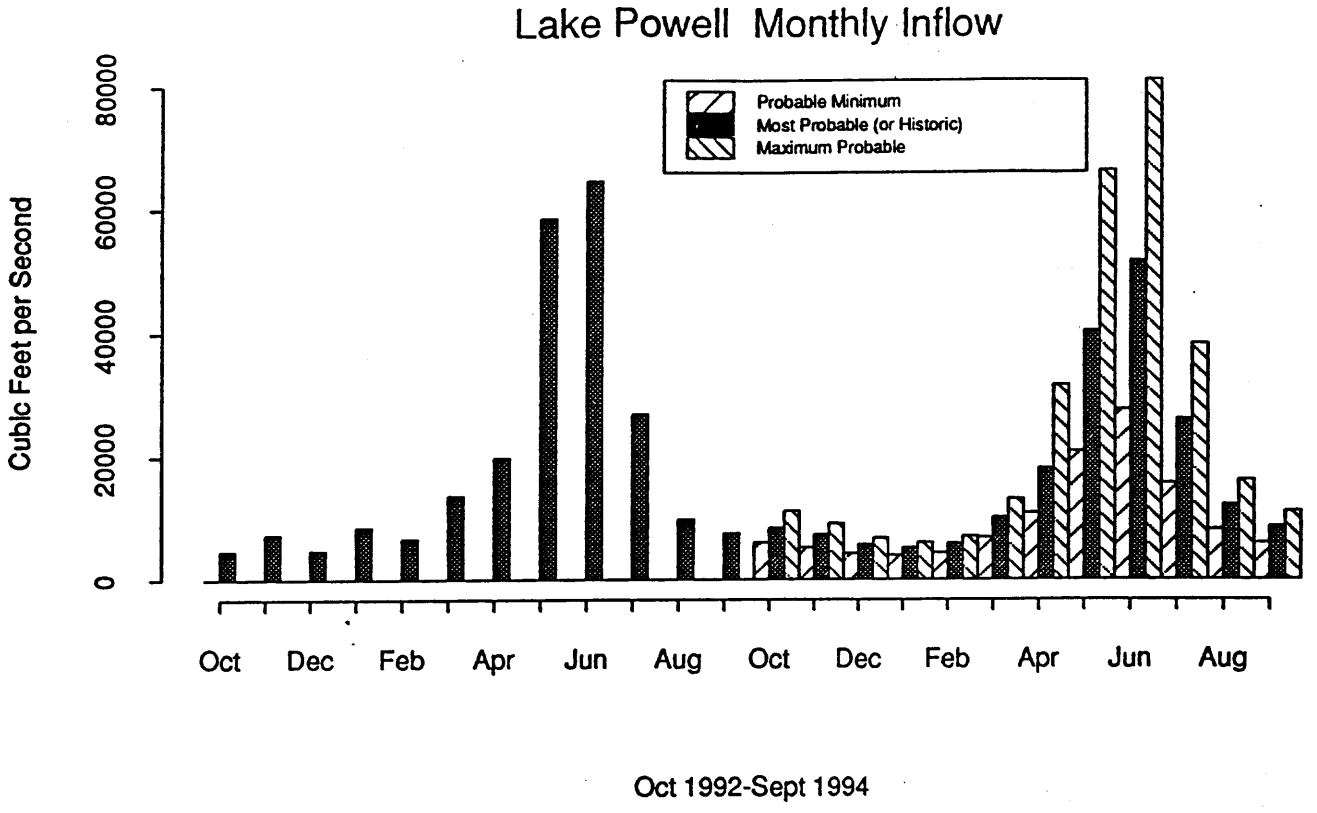
Oct. 1992 - Sep. 1994

Lake Powell EOM Elevation
Without Spring Habitat Maintenance Flows

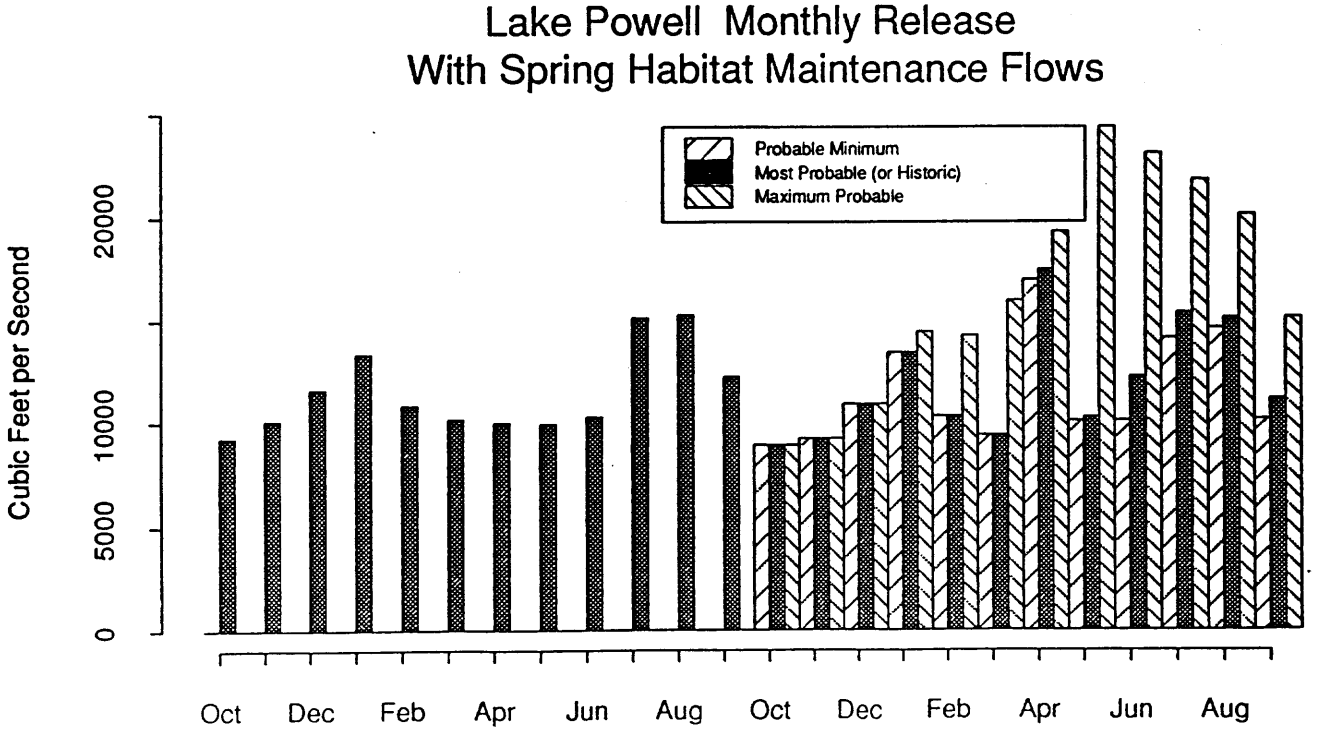


Oct. 1992 - Sep. 1994

Lake Powell



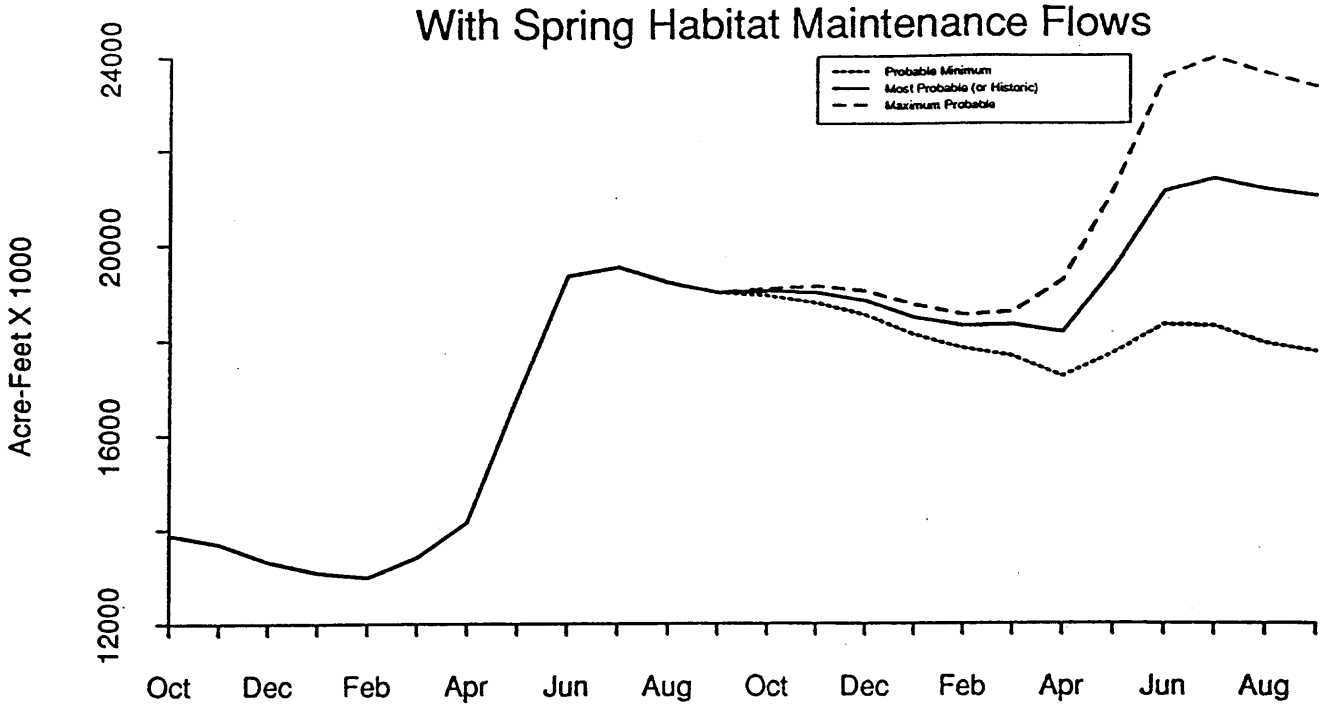
Oct 1992-Sept 1994



Oct 1992-Sept 1994

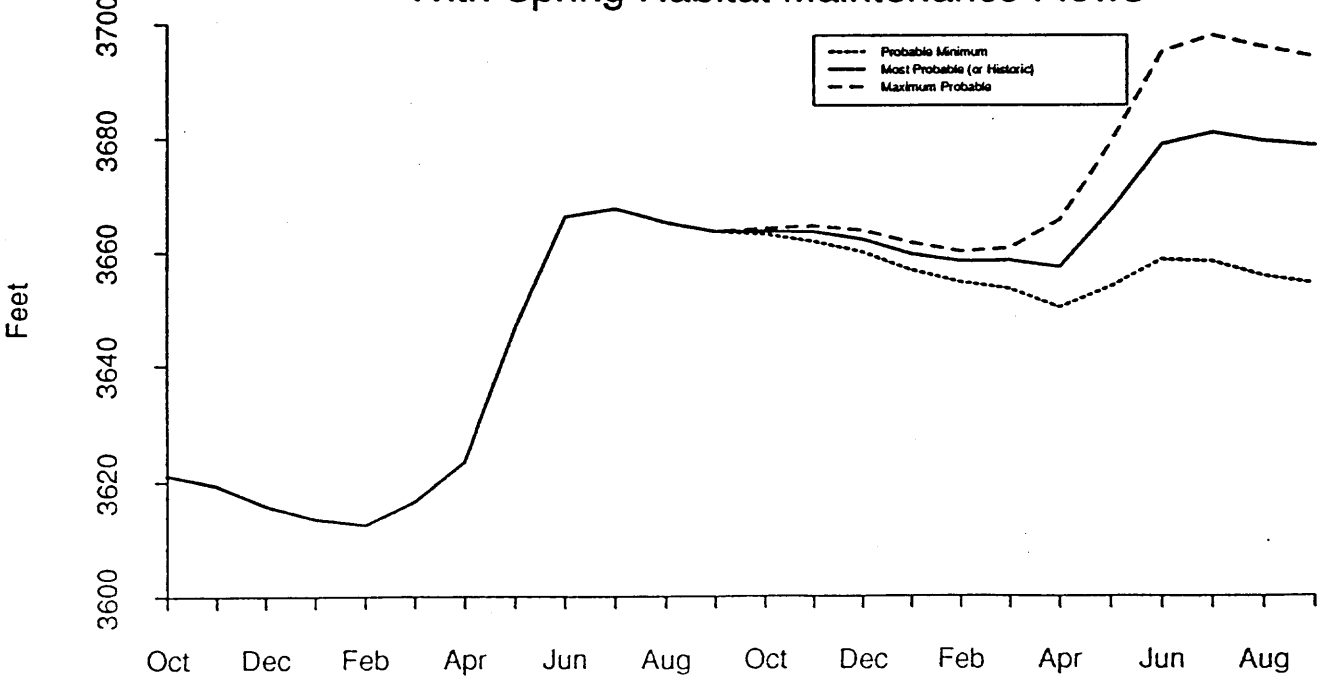
Lake Powell

Lake Powell EOM Content
With Spring Habitat Maintenance Flows



Oct. 1992 - Sep. 1994

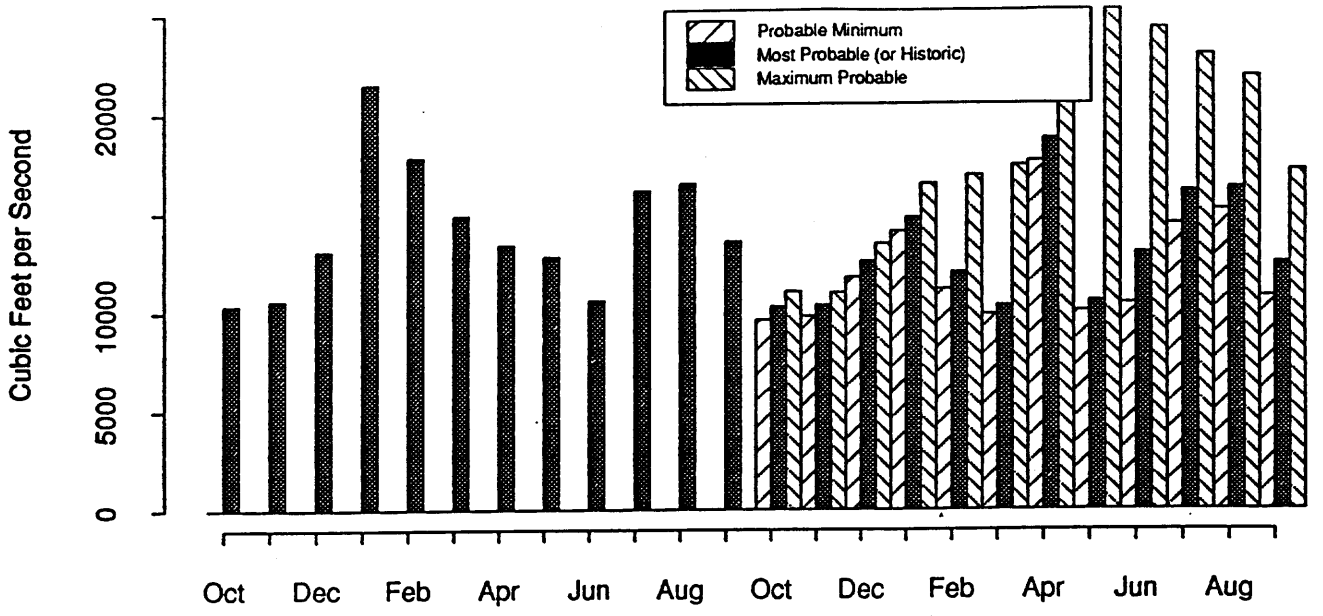
Lake Powell EOM Elevation
With Spring Habitat Maintenance Flows



Oct. 1992 - Sep. 1994

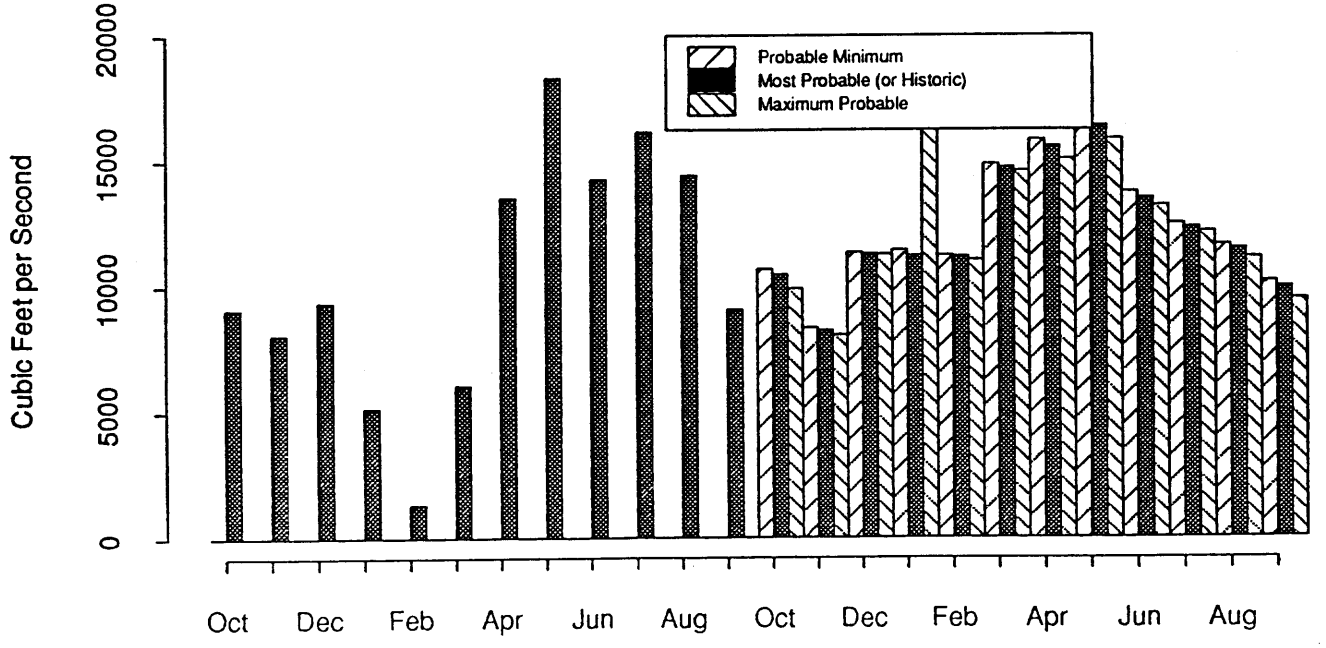
Lake Mead

Lake Mead Monthly Inflow



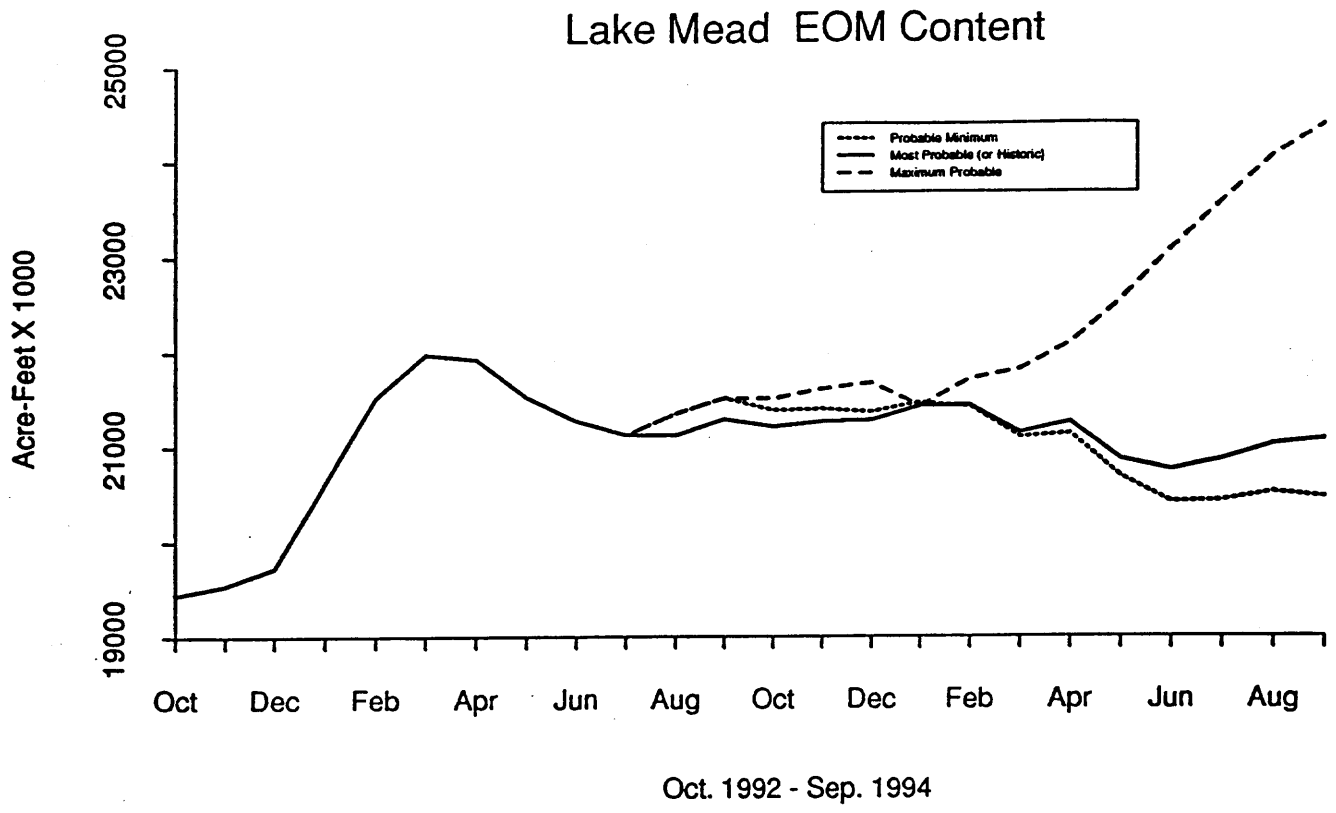
Oct 1992-Sept 1994

Lake Mead Monthly Release

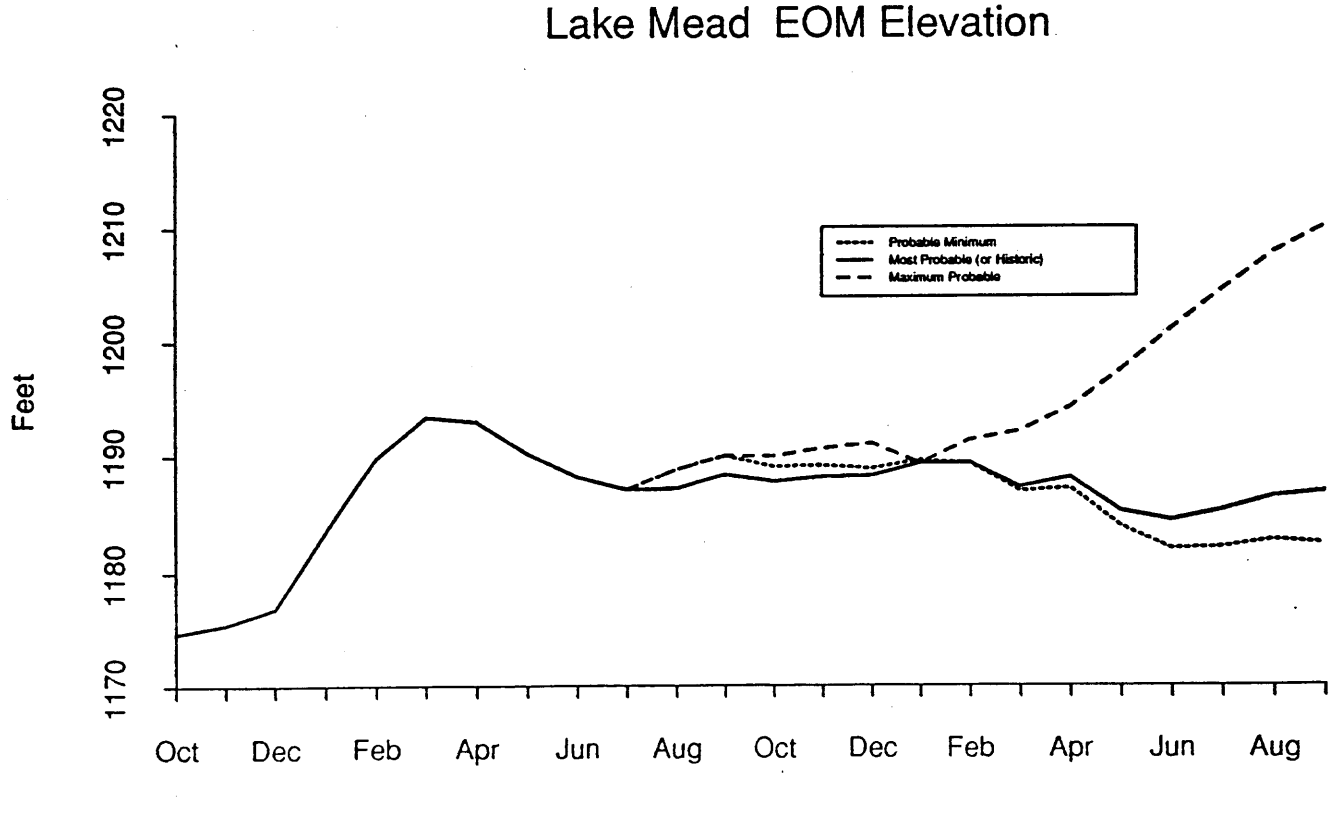


Oct 1992-Sept 1994

Lake Mead



Oct. 1992 - Sep. 1994



Oct. 1992 - Sep. 1994

United States Department of the Interior

BUREAU OF RECLAMATION
DENVER OFFICE
P.O. Box 25007
Building 67, Denver Federal Center
Denver, Colorado 80225-0007

TAKE PRIDE IN AMERICA

FEDERAL FILE COPY

DEC 14 '93

IN REPLY REFER TO:

D-5755

Memorandum

December 8, 1993

To: Colorado River Management Work Group Members

From: Chairman, Colorado River Management Work Group

Subject: 1994 Annual Operating Plan for Colorado River Reservoirs

On December 1, 1993, the Annual Operating Plan For Colorado River Reservoirs 1994 was approved by the Secretary of the Interior. Enclosed are copies of this report, the memorandum to the Secretary, and a sample letter which is identical to those recently mailed to the governors of the seven Colorado River Basin states.

Leslie Stillwater
for
Wayne Cheney

United States Department of the Interior

BUREAU OF RECLAMATION
WASHINGTON, D.C. 20240

IN REPLY
REFER TO:
D-5755
PRJ-13.00

OCT 20 1993

MEMORANDUM

To: Secretary

Through: Elizabeth Ann Rieke (SGD) Elizabeth Ann Rieke
Assistant Secretary - Water and Science

From: Daniel P. Beard
Commissioner

Subject: Colorado River Operating Plan for 1994

Regional Directors Robert J. Towles and Roland G. Robison, after consultation at a meeting on August 9, 1993, with representatives of the Governors of the Colorado River Basin States, the Upper Colorado River Commission, appropriate Federal agencies, and others interested in Colorado River operations, approved the 1994 Annual Operating Plan (AOP) for the Colorado River reservoirs. This memorandum transmits the 1994 Draft AOP for your approval.

The Colorado River Management Work Group (Work Group), which provides a forum for the discussion of technical issues relating to the implementation of the "Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of September 30, 1968," (Operating Criteria) met twice during the past spring. Each year the Bureau of Reclamation (Reclamation) consults with members of the Work Group to estimate the probable water supply; review the planned uses for water within each of the basin states; perform technical studies associated with those supplies, uses, and projected reservoir conditions; and prepare the draft AOP.

The recommended plan of operation for 1994 reflects uses of the reservoirs for all purposes consistent with the Operating Criteria. Pursuant to required Secretarial determinations, sufficient water will be released from Glen Canyon Dam during water year 1994 to equalize, as nearly as practical, the active reservoir contents of Lakes Powell and Mead on September 30, 1994, in accordance with article II(3) of the Operating Criteria unless the minimum objective release criterion in article II(2) (10,150 million cubic meters [MCM], equivalent to 8.230 million acre-feet [MAF]) is controlling.

Taking into account the following:

- the reasonable beneficial consumptive use requirements of mainstream users in the Lower Division States are expected to be less than 9,250 MCM (7.500 MAF),
- existing water supply conditions in the basin, and
- predicted water supply conditions in the basin,

the "normal" condition is the criterion governing the operation of Lake Mead for calendar year 1994 in accordance with article III(3)(a) of the Operating Criteria and article II(B)(1) of the decree in Arizona v. California. All reasonable beneficial consumptive needs of Colorado River mainstream users will be met in calendar year 1994 and 1,850 MCM (1.500 MAF) of water will be delivered to Mexico during calendar year 1994 in accordance with article 15 of the 1944 Mexican Water Treaty and minute No. 242 of the International Boundary and Water Commission. If it becomes evident that water needs in the Lower Division States may exceed 9,250 MCM (7.500 MAF), the Secretary of the Interior will consult with interested parties regarding modifications to the AOP.

The authority to allow the use of water in one Lower Division State in quantities greater than that State's basic apportionment is identified in article II (B)(6) of the decree in Arizona v. California which states:

> "If, in any one year, water apportioned for consumptive use in a state will not be consumed in that state, whether for the reason that delivery contracts for the full amount of the state's apportionment are not in effect or that users cannot apply all of such water to beneficial uses, or for any other reason, nothing in this decree shall be construed as prohibiting the Secretary of the Interior from releasing such apportioned but unused water during such year for consumptive use in the other states. No rights to the recurrent use of such water shall accrue by reason of the use thereof."

Therefore, any Lower Division State will be allowed to use apportioned, but unused, water from another Lower Division State during calendar year 1994.

If the final Supreme Court decree accounting data for calendar year 1994 indicate that more than 9,250 MCM (7.500 MAF) were consumed in the Lower Division States, then by virtue of the authority vested in the Secretary of the Interior, compensation for overuse of such water will be required by the end of calendar year 1999 from any State exceeding its apportionment. Compensation will be in the form of an adjustment to that State's consumptive use apportionment. Alternate forms of compensation or other timeframes may be implemented if agreed to by the Governors' representatives of the Seven Colorado River Basin States and the Secretary of the Interior. The need for compensation will be eliminated if (1) a "surplus" is determined, (2) a flood control release from Hoover Dam is required, or (3) the 1994 AOP is modified.

Recent years of drought and an inevitable increase in demands for Colorado River water in the near future dictate that the efficient use of water must be a priority to manage the resource. To this end, reasonable beneficial consumptive use will be ensured through consultation with water users in accordance with Title 43 CFR 417 and 426.19.

If you concur with our recommendation, the enclosed letter to the Governors of the Seven Colorado River Basin States, Upper Colorado River Commission, and appropriate Federal agencies may be used in implementing the AOP for 1994. Reclamation staff are available for further discussion if you desire.

/s/Daniel Beard

Enclosure

bc: Secretary's Surname
Secretary's Reading File (2)
ES, AS/WS (3), CL, CLC, SOL
W-1000, W-1500, W-6500
(w/encl to each)

Regional Solicitor, Intermountain Region, 125 South State Street, Salt Lake City UT 84138-1180
Regional Solicitor, Rocky Mountain Region, Denver CO, Attention: D-105
Field Solicitor, Intermountain Region, Two North Central Avenue, Suite 500, Phoenix AZ 85004
Regional Director, Fish and Wildlife Service, Region 6, PO Box 25486, Denver CO 80225
Regional Director, Fish and Wildlife Service, Region 2, PO Box 1306, Albuquerque NM 87103
Regional Director, National Park Service, Rocky Mountain Region, PO Box 25287, Denver CO, 80225-0287
Regional Director, Western Regional Office, National Park Service, 600 Harrison Street, Suite 600, San Francisco CA 94107-1372
Area Director, Bureau of Indian Affairs, PO Box 26567, Albuquerque NM 87125-6567
Area Director, Bureau of Indian Affairs, PO Box 10, Phoenix AZ 85001-0010
Area Director, Bureau of Indian Affairs, PO Box 1060, Gallup NM 87305
Area Director, Bureau of Indian Affairs, 2800 Cottage Way, Sacramento CA 95825
Regional Director, Boulder City NV, Attention: LC-400
Regional Director, Salt Lake City UT, Attention: UC-400
Project Manager, Phoenix AZ, Attention: APO-100
Project Manager, Yuma AZ, Attention: YPO-100
(w/encl to each)

D-1000, D-5000, D-5020, D-5100, D-5600, D-5620, D-5300, D-5700, D-5750, D-5755, D-7920
(w/encl to each)

All Work Group members
(w/encl to each)

WBR:LStillwater:ce:9/8/93:6-8700
(PC:DISKa\D5755\AOP\Secymemo.ls) COLORADO RIVER OPERATING PLAN 1994

THE SECRETARY OF THE INTERIOR

WASHINGTON

DEC 1 1993

DEC 14 '93

Honorable Bruce King
Governor of New Mexico
Santa Fe, New Mexico 87503

Dear Governor King:

The Bureau of Reclamation, after consultation at a meeting on August 9, 1993, with representatives of the Colorado River Basin States, the Upper Colorado River Commission, appropriate Federal agencies, and others interested in Colorado River operations, approved the Annual Operating Plan (AOP) (copy enclosed) for the Colorado River reservoirs for 1994. The plan of operation reflects uses of the reservoirs for all purposes consistent with the "Criteria for Coordinated Long-Range Operation of the Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of September 30, 1968" (Operating Criteria).

Pursuant to required Secretarial determinations, sufficient water will be released from Glen Canyon Dam during water year 1994 to equalize, as nearly as practical, the active reservoir contents of Lakes Powell and Mead on September 30, 1994, in accordance with article II(3) of the Operating Criteria unless the minimum objective release criterion in article II(2) (10,150 million cubic meters [MCM], equivalent to 8.230 million acre-feet [MAF]) is controlling.

Taking into account the following:

- the reasonable beneficial consumptive use requirements of mainstream users in the Lower Division States are expected to be less than 9,250 MCM (7.500 MAF),
- existing water supply conditions in the basin, and
- predicted water supply conditions in the basin,

the "normal" condition is the criterion governing the operation of Lake Mead for calendar year 1994 in accordance with article III(3)(a) of the Operating Criteria and article II(B)(1) of the decree in Arizona v. California. All reasonable beneficial consumptive needs of Colorado River mainstream users will be met in calendar year 1994 and 1,850 MCM (1.500 MAF) of water will be delivered to Mexico during calendar year 1994 in accordance with article 15 of the 1944 Mexican Water Treaty and minute No. 242 of the International Boundary and Water Commission. If it becomes evident that water needs in the Lower Division States may exceed 9,250 MCM (7.500 MAF), I will consult with interested parties regarding modifications to the AOP.

California or any Lower Division State will be allowed to use apportioned, but unused, water from another Lower Division State according to article II(B)(6) of the decree in Arizona v. California.

If the final Supreme Court decree accounting data for calendar year 1994 indicate that more than 9,250 MCM (7.500 MAF) were consumed in the Lower Division States, then by virtue of the authority vested in this Office, compensation for overuse of such water will be required by the end of calendar year 1999 from any State exceeding its apportionment. Compensation will be in the form of an adjustment to that State's consumptive use apportionment. Alternate forms of compensation or other timeframes may be implemented if agreed to by the Governors' representatives of the Seven Colorado River Basin States and myself. The need for compensation will be eliminated if (1) a "surplus" is determined, (2) a flood control release from Hoover Dam is required, or (3) the 1994 AOP is modified.

Recent years of drought and an inevitable increase in the types of uses and quantity of demands for Colorado River water in the near future dictate that the efficient use of water must be a priority to manage the resource. To this end, reasonable beneficial consumptive use will be ensured through consultation with water users in accordance with Title 43 CFR 417 and 426.19.

Sincerely,

Enclosure

cc: Mr. Eluid L. Martinez
State Engineer
State of New Mexico
PO Box 25102
Santa Fe, New Mexico 87504-5102
(w/encl)