RECLAMATION

Managing Water in the West

Annual Operating Plan for Colorado River Reservoirs 2008

U.S. Department of the Interior
Bureau of Reclamation

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INTRODUCTION

Authority

This 2008 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), as amended, promulgated by the Secretary of the Interior (Secretary). This AOP implements the requirement of Section 602(b) of the Colorado River Basin Project Act that the Secretary annually prepare "a report describing the actual operation under the adopted criteria [i.e., the Operating Criteria] for the preceding compact water year [i.e., from October 1 to September 30] and the projected operation of the current year."

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 United States-Mexico Water Treaty), interstate compacts, court decrees, as well as the Record of Decision for Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead (Interim Guidelines), Colorado River Water Delivery Agreement (69 *Federal Register* 12202, March 15, 2004), 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 such other parties as the Secretary may deem appropriate 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 and others. Accordingly, the 2008 AOP was prepared by the Bureau of Reclamation (Reclamation) in consultation with the seven Basin States Governors' representatives; the Upper Colorado River Commission; Native American tribes; appropriate Federal agencies; representatives of the academic and scientific communities, environmental organizations, and the recreation industry; water delivery contractors; contractors for the purchase of Federal power; others interested in Colorado River operations; and the general public, through the Colorado River Management Work Group (CRMWG).

In September 2005, Reclamation initiated a process in accordance with the National Environmental Policy Act (NEPA) to develop additional operational guidelines for Lake Powell and Lake Mead in response to the continued drought and increasing water demands on the system. A Record of Decision (ROD) adopting the Interim Guidelines was signed by the Secretary on December 13, 2007.

Article I(2) of the Operating Criteria allows for revision of this 2008 AOP by June of 2008 to reflect the current hydrologic conditions. This process for revision is further described in Section 7.C of the Interim Guidelines. Any revision to the AOP may occur only through the AOP consultation process as required by applicable Federal law.

Purpose

The purposes of the AOP are to determine or address: (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 to be in storage in the Upper Basin reservoirs as of September 30, 2008, pursuant to Section 602(a) of the Colorado River Basin Project Act; (3) water available for delivery pursuant to the 1944 United States-Mexico Water Treaty and Minutes No. 242 and 310 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 as implemented by the Interim Guidelines; 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 Consolidated Decree of the Supreme Court of the United States in *Arizona v. California*, 547 U.S. 150 (2006) (Consolidated Decree).

Consistent with the above determinations and in accordance with other applicable 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. Releases from Lake Powell during water year 2008 shall be made consistent with Section 6.B (Upper Elevation Balancing Tier) in the Interim Guidelines. Consistent with Section 6.B.1 of the Interim Guidelines, the water year release from Lake Powell in 2008 shall be 8.23 maf (10,150 mcm) unless provisions in Section 6.B.3 occur. Consistent with Section 6.B.3 of the Interim Guidelines, if the April 2008 24-Month Study projects the September 30, 2008, Lake Powell elevation to be greater than elevation 3,636 feet, Section 6.A (Equalization Tier) of the Interim Guidelines will govern the release of water from Lake Powell for the remainder of water year 2008 (through September 2008).

Lower Basin Delivery. Under the most probable inflow scenario, downstream deliveries are expected to control the releases from Hoover Dam. Taking into account (1) the existing water storage conditions in the basin, (2) the most probable near-term water supply conditions in the basin, and (3) Section 2.B.5 of the Interim Guidelines, the Intentionally Created Surplus (ICS) Surplus Condition is the criterion governing the operation of Lake Mead for calendar year 2008 in accordance with Article III(3)(b) of the Operating Criteria and Article II(B)(2) of the Consolidated Decree.

No unused apportionment for calendar year 2008 is anticipated. If any unused apportionment becomes available after adoption of this AOP, Reclamation, on behalf of the Secretary, shall allocate any such available unused apportionment for calendar year 2008 in accordance with Article II(B)(6) of the Consolidated Decree.

Water may be made available for diversion pursuant to 43 CFR Part 414[1] to contractors within the Lower Division States. The Secretary shall make Intentionally Created Unused Apportionment (ICUA) available to contractors in Arizona, California, or Nevada for the off-stream storage or consumptive use of water pursuant to individual Storage and Interstate Release Agreements (SIRA) and 43 CFR Part 414. In calendar year 2007, approximately 0.017 maf (20.97 mcm) of ICUA water stored in Arizona was projected to be recovered for use in California,[2] by the Metropolitan Water District of Southern California (MWD). In calendar year 2008, 0.025 maf (30.84 mcm) of ICUA water stored in Arizona is projected to be recovered for use in California by MWD. SNWA may propose to make from 0.015 to 0.025 maf (18.50 to 30.84 mcm) of unused Nevada basic apportionment available for storage by MWD in 2008.

The Inadvertent Overrun and Payback Policy (IOPP), which became effective January 1, 2004, will be in effect during calendar year 2008.[3]

The Colorado River Water Delivery Agreement requires payback of California overruns occurring in 2001 and 2002 as noted in Exhibit C of that document. Each district with a payback obligation under Exhibit C may at its own discretion elect to accelerate paybacks. It is anticipated that California paybacks for calendar years 2007 and 2008 will total 0.040 maf (49.34 mcm) and 0.013 maf (16.04 mcm), respectively.

In calendar years 2007 and 2008, paybacks occurring in California result from Exhibit C obligations and IOPP overruns. In calendar years 2007 and 2008, paybacks for Arizona result only from IOPP overruns.

During calendar year 2007, the scheduled Arizona paybacks were expected to total 606 ac-ft (0.75 mcm). In calendar year 2008, Arizona paybacks are projected to total 3,570 ac-ft (4.40 mcm).

The Interim Guidelines ROD adopted the ICS mechanism that among other things encourages the efficient use and management of Colorado River water in the Lower Basin. The creation and delivery of ICS during the term of the Interim Guidelines is conditioned upon several implementing agreements that were executed concurrent with the Interim

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[1] Off-stream Storage of Colorado River Water; Development and Release of Intentionally Created Unused Apportionment in the Lower Division States: Final Rule (43 CFR Part 414; 64 *Federal Register* 59006, November 1, 1999)

[2] Amendatory Agreement to Agreement between the Central Arizona Water Conservation District and the Metropolitan Water District of Southern California for a Demonstration Project on Underground Storage of Colorado River Water, December 1, 1994

[3] Record of Decision for Implementation Agreement, Inadvertent Overrun and Payback Policy, and Related Federal Actions, Final Environmental Impact Statement

Guidelines ROD. ICS may be created and delivered in 2008 in compliance with the Interim Guidelines and appropriate delivery and forbearance agreements.

In 2006 Reclamation implemented a demonstration program in the Lower Basin to create Intentionally Created Surplus Water (ICS Demonstration Program). The ICS Demonstration Program allowed entitlement holders to undertake extraordinary conservation activities in 2006 and 2007 to reduce their approved annual consumptive use of Colorado River water and account for that conserved water in Lake Mead. The Intentionally Created Surplus Water created and accounted for under the ICS Demonstration Program is now available for delivery pursuant to the Interim Guidelines and implementing agreements.

In 2006 Reclamation implemented the System Conservation of Colorado River Water Demonstration Program (SC Demonstration Program) in the Lower Basin which allows entitlement holders to participate in voluntary conservation to conserve a portion of their approved annual consumptive use of Colorado River water in exchange for appropriate compensation provided by Reclamation. The water conserved (SC Water) would be retained in Lake Mead to assist in providing an interim, supplemental source of water to replace the drainage water from the Wellton-Mohawk Irrigation and Drainage District that is bypassed to the Cienega de Santa Clara and the reject stream from operation of the Yuma Desalting Plant.

1944 United States-Mexico Water Treaty Delivery. A volume of 1.500 maf (1,850 mcm) of water will be available to be scheduled for delivery to Mexico during calendar year 2008 in accordance with Article 15 of the 1944 United States-Mexico Water Treaty and Minutes No. 242 and 310 of the IBWC.

2007 HYDROLOGY SUMMARY AND RESERVOIR STATUS

Below average streamflows were observed in the Colorado River Basin during 2007. Unregulated[4] inflow to Lake Powell in water year 2007 was 8.231 maf (10,150 mcm), or 68 percent of the 30 year average[5] which is 12.06 maf (14,880 mcm). Unregulated inflow to Flaming Gorge, Blue Mesa, and Navajo Reservoirs was 43, 90, and 98 percent of average, respectively.

Runoff from numerous precipitation events reached the Upper Colorado River Basin in October 2006 (the first month of water year 2007). These precipitation events were particularly heavy in the regions surrounding Lake Powell. Runoff in the San Juan, Dirty Devil, and San Rafael Rivers was very high in response to these storm events. Lake Powell increased in elevation by 6.2 feet (1.9 meters) during the month. Aggregate precipitation in the Upper Colorado River Basin was nearly 200 percent of normal in October 2006.

Basin hydrologic conditions trended drier beginning in November 2006. This trend continued through the winter months. In almost all areas of the Upper Colorado River Basin, snowpack remained below average throughout the winter of 2006-2007.

Basinwide snowpack above Lake Powell on March 1, 2007, was 81 percent of average. At that time, the projected April through July inflow to Lake Powell was 71 percent of average. Temperatures in the Colorado River Basin were much above average and precipitation was below average in March 2007. Normally, mountain snowpack continues to build in the month of March. However, in March 2007 there was a net loss of snow in most of the Colorado River Basin with a significant reduction in the water supply projections. In April 2007, the April through July inflow projection to Lake Powell was reduced by 21 percentage points to 50 percent of average. Observed April through July unregulated inflow to Lake Powell was 4.051 maf (5,000 mcm), or 51 percent of average.

The Colorado River Basin experienced five consecutive years of extreme drought during water years 2000 through 2004. Unregulated inflow into Lake Powell during this five-year period was only 62, 59, 25, 51, and 49 percent of average, respectively. These years of very low inflow resulted in significant drawdown of Colorado River reservoirs with total system storage decreasing from 92 percent of capacity on October 1, 1999, to 50 percent of capacity on October 1, 2004. Hydrologic conditions improved in 2005 with above average inflow to Lake Powell (105 percent of average) and record-breaking tributary flows in the Lower Colorado River Basin. Lower Basin tributary inflow into Lake Mead for water year 2005 totaled approximately 0.882 maf (1,088 mcm), or 253 percent of average. Colorado River reservoirs gained 5.10 maf (6,290 mcm) of storage in water year 2005. Drier hydrologic conditions returned in 2006. Unregulated inflow to Lake Powell in water year 2006 was 71 percent of average. Inflow to all major Colorado River reservoirs was below average in 2007.

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[4] Unregulated inflow adjusts for the effects of operations at upstream reservoirs. It is computed by adding the change in storage and the evaporation losses from upstream reservoirs to the observed inflow. Unregulated inflow is used because it provides an inflow time series that is not biased by upstream reservoir operations.
[5] Inflow statistics throughout this document will be compared to the 30-year average, 1971-2000, unless otherwise noted.

Inflow to Lake Powell has been below average in seven out of the past eight years. While drought conditions eased in 2005, and the inflow in 2006 and 2007 was not as low as what occurred in 2000 through 2004, drought conditions in the Colorado River Basin persist. Provisional calculations of natural flow for the Colorado River at Lees Ferry, Arizona, show that the average flow over the last eight water years (2000-2007, inclusive) was the lowest eight-year average in 100 years of record keeping on the Colorado River.

Runoff from numerous precipitation events also reached the Lower Colorado River Basin in October 2006, associated with heavy rainfall in regions surrounding Lake Powell. Runoff from the Paria River, Little Colorado River, and Virgin River was also high in response to these storm events. Lake Mead increased in elevation by 1.0 ft (0.31 m) in the first two weeks of October 2006.

Although tributary inflows in the Lower Colorado River Basin were exceptionally high during water year 2005 and October 2006, overall tributary inflows were below average for water year 2007. Drought conditions persisted for water year 2007 throughout the Lower Basin and the southwestern United States.[6] Abnormally dry to extreme drought conditions persisted throughout Arizona, contributing to 79 percent of average precipitation being recorded in the Gila River Basin. During water year 2007 no tributary inflow from the Gila River reached the mainstream of the Colorado River.[7]

Tributary inflow from the Little Colorado River for water year 2007 also reflected severe drought conditions in the State of Arizona. Tributary inflow from the Little Colorado for water year 2007 totaled 0.111 maf (136.9 mcm), or 62 percent of the long-term[8] average. Tributary inflow from the Bill Williams River into the mainstream totaled 0.025 maf (30.84 mcm) for water year 2007, or 25 percent of the long-term average. Tributary inflow from the Virgin River for water year 2007 was estimated at being near average, totaling 0.164 maf (202.3 mcm), or 95 percent of the long-term average.[9]

Below average inflow to Colorado River reservoirs in 2007 resulted in a net loss in Colorado River total system storage. Reservoir storage in Lake Powell experienced a nominal increase during water year 2007, increasing by 0.013 maf (16.04 mcm). Storage in Lake Mead declined by 1.382 maf (1,705 mcm) during water year 2007. At the beginning of water year 2007, Colorado River total system storage was 56 percent of capacity. As of September 30, 2007, total system storage was 54 percent of capacity, a decrease of approximately 1.400 maf (1,727 mcm).

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[6] From the US Drought Monitor website: http://drought.unl.edu/dm/monitor.html.

[7] Tributary inflow from the Gila River to the mainstream is very sporadic. These flows occur very seldom and when they do they are typically of high magnitude.

[8] The basis for the long-term average is natural flow data from 1906 to 2005. Additional information regarding natural flows may be found at http://www.usbr.gov/lc/region/g4000/NaturalFlow/current.html.

[9] Water year estimates for the Virgin River are based on projections from a partial water year record due to gage outage. The partial water year record for the Virgin River gage is from October 2006 to March 2007.

Tables 1 and 2 list the October 1, 2007, reservoir vacant space, live storage, water elevation, percent of capacity, change in storage, and change in water elevation during water year 2007.

Table 1. Reservoir Conditions on October 1, 2007 (English Units)

Reservoir	Vacant Space	Live Storage	Water Elevation	Percent of Capacity	Change in Storage*	Change in Elevation*
	(maf)	(maf)	(ft)	(%)	(maf)	(ft)
Fontenelle	0.159	0.186	6,483.4	54	-0.054	-8.4
Flaming Gorge	0.686	3.064	6,022.4	82	-0.067	-1.8
Blue Mesa	0.142	0.687	7,503.1	83	0.020	2.4
Navajo	0.185	1.510	6,072.1	89	0.090	6.6
Lake Powell	12.39	11.93	3,601.9	49	0.013	0.1
Lake Mead	13.37	12.51	1,111.1	48	-1.382	-14.3
Lake Mohave	0.265	1.545	637.3	85	-0.040	-1.5
Lake Havasu	0.044	0.576	447.8	93	0.021	1.1
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Totals	27.25	32.00		54.0	-1.400	

* From October 1, 2006, to September 30, 2007.

Table 2. Reservoir Conditions on October 1, 2007 (Metric Units)

Reservoir	Vacant Space	Live Storage	Water Elevation	Percent of Capacity	Change in Storage*	Change in Elevation*
	(mcm)	(mcm)	(m)	(%)	(mcm)	(m)
Fontenelle	196	229	1,976.1	54	-67	-2.6
Flaming Gorge	846	3,779	1,835.6	82	-83	-0.6
Blue Mesa	175	847	2,286.9	83	25	0.7
Navajo	228	1,863	1,850.8	89	111	2.0
Lake Powell	15,283	14,715	1,097.8	49	16	0.0
Lake Mead	16,492	15,430	338.7	48	-1,705	-4.4
Lake Mohave	327	1,906	194.2	85	-49	-0.5
Lake Havasu	54	710	136.5	93	26	0.3
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Totals	33,601	39,479		54.0	-1,727	

* From October 1, 2006, to September 30, 2007.

2008 WATER SUPPLY ASSUMPTIONS

For 2008 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 with associated release patterns and end-of-month contents for each reservoir.

Although there is considerable uncertainty associated with streamflow forecasts and reservoir operating plans made a year in advance, these projections are valuable in analyzing probable impacts on project uses and purposes. The National Weather Service's Colorado Basin River Forecast Center developed the inflow for the probable maximum (10 percent exceedance), most probable (50 percent exceedance), and probable minimum (90 percent exceedance) inflow scenarios in 2008 using the Ensemble Streamflow Prediction (ESP) model. ESP accounts for antecedent streamflows as well as current soil moisture levels with a continuous soil moisture accounting model known as the Sacramento Soil Moisture Accounting Model. The most probable unregulated inflow for Lake Powell in water year 2008 is 9.77 maf (12,050 mcm), or 81 percent of average. The probable minimum unregulated inflow to Lake Powell in water year 2008 is 4.10 maf (5,060 mcm), or 34 percent of average. The probable maximum unregulated inflow is 16.50 maf (20,350 mcm), or 137 percent of average. The three inflow scenarios for Lake Powell are shown in Tables 3 and 4.

Side inflows from Lake Powell to Lake Mead, Lake Mead to Lake Mohave, and Lake Mohave to Lake Havasu are forecasted using historic data over the five-year period of January 2002 through December 2006, inclusive. The last five years of historic data are being used to best represent most recent hydrologic conditions for operational forecasts. Most probable forecasted side inflows into each reach are the arithmetic mean of the five-year record. The probable maximum and probable minimum forecasts for the reach between Lake Powell and Lake Mead are the 10% exceedance and 90% exceedance, respectively, of the five-year record. The most probable side inflow into Lake Mead during water year 2008 is 0.890 maf (1,098 mcm). The probable minimum side inflow into Lake Mead is 0.393 maf (485 mcm). The probable maximum side inflow is 1.602 maf (1,976 mcm).

The monthly volumes of inflow resulting from these assumptions were input into Reclamation's monthly reservoir simulation model and used to plan reservoir operations for 2008. Starting with October 1, 2007, reservoir storage conditions, the monthly releases for each reservoir were adjusted until release and storage levels best accomplished project purposes.

Graphs of the projected 2008 inflows, releases, and storages for each hydrologic scenario are presented in Attachment I.

Table 3. Projected Unregulated Inflow into Lake Powell for Water Year 2008 (English Units: maf)[10]

Time Period	Probable Maximum	Most Probable	Probable Minimum
10/07–12/07	2.14	1.20	0.53
1/08 – 3/08	2.09	1.25	0.52
4/08 – 7/08	10.75	6.42	2.67
8/08 – 9/08	1.52	0.91	0.38
10/08 – 12/08	1.45	1.45	1.45
WY 2008	16.50	9.77	4.10
CY 2008	15.81	10.02	5.01

Table 4. Projected Unregulated Inflow into Lake Powell for Water Year 2008 (Metric Units: mcm)

Time Period	Probable Maximum	Most Probable	Probable Minimum
10/07 –12/07	2,640	1,480	660
1/08 –3/08	2,580	1,540	640
4/08 –7/08	13,260	7,920	3,300
8/08 –9/08	1,870	1,120	470
10/08 –12/08	1,790	1,790	1,790
WY 2008	20,350	12,060	5,060
CY 2008	19,490	12,360	6,180

[10] All values in Tables 3 and 4 are forecasted inflows with the exception of the values for 10/08 – 12/08. The values for this period are the average unregulated inflow from 1976-2005. The calendar year totals in Tables 3 and 4 also reflect the average values for the 10/08 – 12/08 time period.

SUMMARY OF RESERVOIR OPERATIONS IN 2007 AND PROJECTED 2008 RESERVOIR OPERATIONS

The regulation of the Colorado River has had effects on aquatic and riparian resources. Controlled releases from dams have modified temperature, sediment load, and flow patterns, resulting in increased productivity of some introduced aquatic resources and the development of economically significant sport fisheries. However, these same releases have detrimental effects on endangered and other native species. Operating strategies designed to protect and enhance aquatic and riparian resources have been established at several locations in the Colorado River Basin.

In the Upper Basin, public stakeholder work groups have been established at Fontenelle Dam, Flaming Gorge Dam, the Aspinall Unit, and Navajo Dam. These work groups provide a public forum for dissemination of information regarding ongoing and projected reservoir operations throughout the year and allow stakeholders the opportunity to provide information and feedback with respect to ongoing reservoir operations. At Glen Canyon Dam, the Glen Canyon Dam Adaptive Management Work Group (AMWG), a Federal Advisory Committee Act (FACA) committee, was established in 1997. Since its inception, the AMWG has met regularly to analyze and make recommendations to the Secretary regarding research and monitoring programs in the Grand Canyon as well as experimental modifications to dam operations.[11]

Modifications to planned operations may be made based on changes in forecast conditions or other relevant factors. Consistent with the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Upper Colorado Recovery Program),[12] the San Juan River Basin Recovery Implementation Program (San Juan Recovery Program),[13] Section 7 consultations under the Endangered Species Act (ESA), and other downstream concerns, modifications to monthly operation plans may be based on other factors in addition to changes in streamflow forecasts. Decisions on spring peak releases and downstream habitat target flows may be made midway through the runoff season. Reclamation will conduct meetings with the U.S. Fish and Wildlife Service (Service), other Federal agencies, representatives of the Basin States, and with public stakeholder work groups to facilitate the discussions necessary to finalize site-specific operations plans.

In 1995 Reclamation and the Service formed a partnership with other Federal, state, and local public agencies and private organizations to develop the Lower Colorado River Multi-Species Conservation Program (LCR MSCP). This program permits both non-Federal and Federal parties to participate in and address ESA compliance requirements under Sections 7 and 10 of the ESA. In April 2005 the Secretary signed the Record of Decision to begin implementation of the LCR MSCP.[14]

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[11] Additional information on the AMWG can be found at www.usbr.gov/uc/rm/amp.
[12] Additional information on the Upper Colorado Recovery Program can be found at http://coloradoriverrecovery.fws.gov.
[13] Additional information on the San Juan Recovery Program can be found at www.fws.gov/southwest/sjrip.
[14] Additional information on the LCR MSCP can be found at http://www.usbr.gov/lc/lcrmscp.

The following paragraphs discuss the 2007 and most probable projected 2008 operation of each of the reservoirs with respect to applicable provisions of compacts, the Consolidated Decree, statutes, regulations, contracts, and instream flow needs for maintaining or improving aquatic resources where appropriate.

Fontenelle Reservoir

Hydrologic conditions in water year 2007 in the Upper Green River Basin were extremely poor when compared to the historic record for the reservoir. The April through July inflow to Fontenelle Reservoir during water year 2007 was 0.293 maf (361 mcm), which was only 34 percent of average. While drought conditions were present throughout the Colorado River Basin, drought conditions were most severe in the Upper Green River Basin when compared to other sub-basins in the Upper Colorado River Basin. Inflow to Fontenelle Reservoir has been below average for 8 consecutive years.

Fontenelle Reservoir did not fill in 2007 and bypass releases were not necessary in order to accommodate the spring runoff. Inflow peaked at 3,100 cfs (88 cms) on May 24, 2007. Releases from Fontenelle Reservoir were maintained at approximately 800 cfs (23 cms) through the spring runoff period. The peak elevation of Fontenelle Reservoir during water year 2007 was 6,490.0 feet (1,978.1 meters) above sea level which occurred on July 2, 2007. This elevation is 16.0 feet (4.9 meters) below the spillway crest elevation.

The most probable April through July inflow to Fontenelle Reservoir during water year 2008 is 0.590 maf (728 mcm). This volume far exceeds 0.345 maf (426 mcm), the storage capacity of Fontenelle Reservoir. For this reason, the most probable and probable maximum inflow scenarios require releases during the spring that exceed the capacity of the powerplant to avoid uncontrolled spills from the reservoir. It is very likely that Fontenelle Reservoir will fill during water year 2008. In order to minimize high spring releases and to maximize downstream water resources and power production, the reservoir will most likely be drawn down to about elevation 6,468 feet (1,971 meters) by early April 2008, which is five feet (1.5 meters) above minimum power pool, and corresponds to a volume of 0.111 maf (137 mcm) of live storage.

Flaming Gorge Reservoir

Inflow to Flaming Gorge Reservoir during water year 2007 was extremely low. Unregulated inflow in water year 2007 was 0.744 maf (918 mcm), which is 43 percent of average. Flaming Gorge Reservoir did not fill during water year 2007. On October 1, 2006, the beginning of water year 2007, the reservoir elevation was 6,024.2 feet (1,836.2 meters). The reservoir elevation decreased during water year 2007 and ended water year 2007 (on September 30, 2007) at an elevation of 6,022.4 feet (1,835.6 meters). The water year ending reservoir elevation was 17.6 feet (5.4 meters) below the full pool elevation of 6,040.0 feet (1,841.0 meters) which corresponds to an available storage space of 0.686 maf (846 mcm).

Reclamation operated Flaming Gorge Dam in compliance with the Flaming Gorge Record of Decision (Flaming Gorge ROD) in 2007. The hydrologic conditions during the spring of 2007 were designated as Moderately Dry. Reclamation convened a technical working group, comprised of Service, Western Area Power Administration (Western), and

Reclamation personnel, which proposed that the Green River measured at the Jensen, Utah stream gauge should be managed to maintain flows at or above 8,300 cfs (235 cms) for 7 days or more during the peak flows of the Yampa River.

Releases from Flaming Gorge Reservoir were increased to powerplant capacity of 4,450 cfs (126 cms) on May 14, 2007, in anticipation of peak flows on the Yampa River. On May 17, 2007, as a result of releases from Flaming Gorge Dam and flows on the Yampa River, the flows in the Green River at Jensen reached 12,800 cfs (362 cms). Releases were maintained at powerplant capacity until May 20, 2007, which was the 7th day of flows in the Green River above 8,300 cfs (235 cms). Flows in the Green River at Jensen remained above 8,300 cfs (235 cms) until May 26, 2007 (12 days). Releases from Flaming Gorge Reservoir were reduced by 350 cfs (10 cms) per day beginning on May 21, 2007. Releases were maintained at 1,150 cfs (33 cms) during June 2007. Releases were reduced to 800 cfs (23 cms) in July 2007 and remained at this level for the duration of calendar year 2007.

During water year 2008, Flaming Gorge Dam will continue to be operated in accordance with the Flaming Gorge ROD. High spring releases are scheduled to occur in 2008, timed with the Yampa River's spring runoff peak flow, followed by lower summer and autumn base flows. Under the most probable scenario, releases in the winter and early spring of 2008 will be 800 cfs (23 cms).

The Upper Colorado Recovery Program, in coordination with Reclamation, the Service, and Western, is conducting studies associated with flood plain inundation. Such studies include: improving connectivity of flood plain habitats, identifying ways to improve entrainment of larval razorback suckers into floodplain habitats, maintaining the river channel, restoring natural variability of the river system, and analyzing possibilities for meeting the goals of the Flow and Temperature Recommendations at lower peak flow levels where feasible.

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

Below average snowpack conditions prevailed in the Gunnison Basin during water year 2007. Snow measurement sites in the basin reported below average moisture throughout the winter and into the spring of 2007. The April through July unregulated runoff into Blue Mesa Reservoir in 2007 was 0.511 maf (630 mcm), or 71 percent of average, and occurred earlier than normal. Water year 2007 unregulated inflow into Blue Mesa Reservoir was 0.895 maf (1,100 mcm), or 90 percent of average. Blue Mesa Reservoir nearly filled in 2007 reaching a peak elevation of 7,514.7 feet (2,290.5 meters) on July 2, 2007, 4.7 feet (1.4 meters) from full pool. Storage in Blue Mesa Reservoir increased during water year 2007 by 0.020 maf (25 mcm). Storage in Blue Mesa Reservoir on September 30, 2007, was 0.687 maf (847 mcm), or 83 percent of capacity.

Releases from Aspinall Unit reservoirs in 2007 were below normal levels. Releases from the Aspinall Unit provided for a flow of 900 to 1,500 cfs (11.3 to 14.2 cms) from October 1, 2006, to January 15, 2007, in the Gunnison River through the Black Canyon (below the Gunnison Tunnel). In January, releases began to be decreased in response to decreasing forecasted inflow and reached 800 cfs in March 2007. Beginning the last week of March, Crystal releases were increased as the diversions through the Gunnison Tunnel increased. Water year 2007 powerplant bypasses were approximately 0.039 maf (48 mcm) at Crystal

Dam. These bypass releases occurred because the powerplant was shut down for maintenance during parts of January and February 2007.

On August 16, 1995, Memorandum of Agreement (MOA) No. 95-07-40-R1760 was signed by Reclamation, the Service, and the Colorado Water Conservation Board. The purpose of the MOA was to provide water to the Redlands Fish Ladder, assure at least 300 cfs (8.5 cms) of flow in the 2-mile reach of the Gunnison River between the Redlands Fish Ladder and the confluence of the Gunnison and Colorado Rivers (2-mile reach), and to benefit Colorado River Basin endangered fish. This MOA was extended for an additional five years on June 30, 2000. A key provision of the MOA requires that the parties adopt a plan to share water shortages in dry years, when total storage at Blue Mesa Reservoir is projected to drop below 0.40 maf (493 mcm) by the end of the calendar year. However, the MOA was not renewed in 2005. Reclamation intends to operate the Aspinall Unit to meet the intent of the MOA if water supplies are available. While deliveries of 100 cfs (2.8 cms) to the Redlands Fish Ladder can be protected under Colorado water law, absent the MOA, the additional releases for the benefit of the 2-mile reach cannot. Releases from the Aspinall Unit combined with runoff from intervening tributaries resulted in at least 276 cfs (7.8 cms) being available for the fish ladder and 2-mile reach of the Gunnison River in 2007.

On January 17, 2001, the United States filed an application to quantify the Federal reserved water right decreed to the Black Canyon of the Gunnison National Monument. The water right is for flows in the Gunnison River through the Black Canyon of the Gunnison National Park which is downstream of the Gunnison Tunnel and downstream of the Aspinall Unit. On April 2, 2003, the Department of the Interior and the State of Colorado reached agreement regarding water for the Park. Under the 2003 agreement, an amended water right application was filed by the United States for the National Park Service for 300 cfs (8.5 cms) with a 1933 priority date. In a separate action, the Colorado Water Conservation Board filed, under the State of Colorado instream flow program, for additional flows in excess of those required to fulfill the purposes of the Aspinall Unit (with a 2003 priority date) to provide for protection of additional water resources for the Park. The 2003 amended Federal reserved water right application was challenged in United States District Court in Colorado. On September 11, 2006, the District Court set aside the 2003 agreement. Currently, the parties to the water rights case are engaged in formal mediation.

In July 2003, a final report titled, “Flow Recommendations to Benefit Endangered Fishes in the Colorado and Gunnison Rivers” (Flow Recommendations for the Colorado and Gunnison Rivers) was published by the Upper Colorado Recovery Program. The report compiled and summarized the results of endangered fish research in the Gunnison and Upper Colorado Rivers under the Upper Colorado Recovery Program. The report presents flow recommendations for two different river reaches: one for the lower Gunnison River between Delta and Grand Junction, Colorado, as measured at Whitewater (Gunnison River near Grand Junction gage); and the other for the Colorado River downstream of the Gunnison River confluence as measured at the Colorado-Utah State line. In January 2004, Reclamation published a Notice of Intent to prepare an Environmental Impact Statement (EIS). The purpose of Reclamation’s proposed action is to operate the Aspinall Unit to avoid jeopardy to endangered species while maintaining the congressionally authorized Aspinall Unit purposes. Public scoping meetings were held in February 2004 and cooperating agency meetings were held in 2005 and 2006. Reclamation will develop

alternatives to address the Flow Recommendations for the Colorado and Gunnison Rivers. Difficulties in resolution of the reserved water right for the Black Canyon of the Gunnison National Park have delayed progress on the EIS. A draft EIS is likely to be released in 2008.

For water year 2008, the Aspinall Unit will be operated to conserve storage while meeting downstream delivery requirements, consistent with authorized project purposes. Under normal conditions, the minimum release objectives of the Aspinall Unit are to honor the delivery requirements of the Uncompahgre Valley Project, and other senior water rights downstream, to the extent possible to maintain a year round minimum flow of at least 300 cfs (8.5 cms) in the Gunnison River through the Black Canyon, and to the extent possible maintain a minimum flow of 300 cfs (8.5 cms) in the 2-mile reach below the Redlands Diversion Dam during the months of July through October. In dry years, the 300 cfs (8.5 cms) flow through the canyon and the 2-mile reach can be reduced. In 2008, under the most probable inflow conditions, flows through the Black Canyon of the Gunnison National Park will be above the 300 cfs (8.5 cms) minimum release objective during the summer months. Consideration shall be given to the trout fishery in the Black Canyon and Gunnison Gorge and recreational interests consistent with project purposes. Releases during 2008 will be planned to minimize fluctuations in the daily and monthly flows in the Gunnison River below the Gunnison Tunnel diversion.

Under the probable minimum inflow scenario, Blue Mesa Reservoir would not fill in 2008. Under the most probable and probable maximum inflow scenarios, Blue Mesa Reservoir is expected to fill in 2008.

Navajo Reservoir

Inflow to Navajo Reservoir in 2007 was near the 30-year average. Water year 2007 unregulated inflow was 1.097 maf (1353 mcm), or 98 percent of average. A significant portion of the water year inflow occurred in October 2006 when heavy rains in the San Juan River Basin resulted in inflow being 380 percent of average for the month. The April through July unregulated inflow into Navajo Reservoir in water year 2007 was 0.510 maf (629 mcm), or 76 percent of average. Unregulated inflow to Navajo Reservoir in water years 2000, 2001, 2002, 2003, 2004, 2005 and 2006 was 42, 93, 11, 44, 72, 136 and 62 percent of average, respectively.

Navajo Reservoir reached a peak water surface elevation of 6,080.3 feet (1,853.3 meters) on June 21, 2007, 4.7 feet (1.4 meters) from full pool. The water surface elevation at Navajo Reservoir on September 30, 2007, was 6,072.1 feet (1,850.8 meters), with reservoir storage at 89 percent of capacity.

The final report titled, “Flow Recommendations for the San Juan River” (San Juan Flow Recommendations), which outlines flow recommendations for the San Juan River below Navajo Dam, was completed by the San Juan Recovery Program in May 1999 after a seven-year research period. The purpose of the report is to provide flow recommendations for the San Juan River that promote the recovery of the endangered Colorado pikeminnow and razorback sucker, maintain important habitat for these two species as well as the other native species, and provide information for the evaluation of continued water development in the

basin. These flow recommendations are under review through the San Juan Recovery Program and may be revised in the future.

In 2006, Reclamation completed a NEPA process on the implementation of operations at Navajo Dam that meet the San Juan Flow Recommendations, or a reasonable alternative to them. A Notice of Intent to prepare an EIS was published on October 1, 1999, in the *Federal Register*. In January 2006, the Service issued a non-jeopardy biological opinion for the operations of Navajo Dam to meet the San Juan Flow Recommendations, or a reasonable alternative. The Navajo Reservoir Operations Final EIS was issued on April 20, 2006. The ROD for the Navajo Reservoir Operations Final EIS was signed by the Regional Director of Reclamation's Upper Colorado Region on July 31, 2006.

The San Juan Flow Recommendations called for making a 13-day spring peak release of 5,000 cfs (142 cms) from Navajo Reservoir in 2007. In anticipation of a potential early spring runoff, the peak release was started earlier in 2007 than in previous years. Releases were increased beginning on April 30, 2007. A release rate of 5,000 cfs (142 cms) was reached on May 3, 2007, and was maintained until May 17, 2007. Releases were reduced to a flow of 1,250 cfs (35 cms) in late May and remained at this level though the end of June 2007. A base summer release rate of 750 cfs (21.2 cms) was implemented on July 1, 2007.

In 2007, a group of water users developed a two-year agreement to limit their water use to the rates/volumes indicated in the agreement for the years 2007-2008. The 2007-2008 "Recommendations for Administration and Operation of the San Juan River" was similar to the agreements that were developed in 2003, 2004, 2005, and 2006. Ten major water users (the Jicarilla Apache and Navajo Nations, Hammond Conservancy District, Public Service Company of New Mexico, City of Farmington, Arizona Public Service Company, BHP-Billiton, Bloomfield Irrigation District, Farmers Mutual Ditch, and Jewett Valley Ditch) endorsed the recommendations which included limitations on diversions for 2007-2008, criteria for determining a shortage, and shortage-sharing requirements in the event of a water supply shortfall, including sharing of shortages between the water users and the flow demands for endangered fish habitat. In addition to the ten major water users, the New Mexico Interstate Stream Commission, the Bureau of Indian Affairs, the Service, and the San Juan Recovery Program all provided input to the recommendations. The recommendations were acknowledged by Reclamation and the New Mexico State Engineer for reservoir operation and river administration purposes.

During water year 2008, Navajo Reservoir will be operated in accordance with the Navajo Reservoir Operations ROD. Navajo Reservoir storage levels are expected to be above average in 2008 under the most probable and probable maximum inflow scenarios. Releases from the reservoir will likely be reduced to 500 cfs (14 cms) in December 2007 and remain at that level through the winter. Under the most probable inflow condition in 2008, a 21-day spring peak release of 5,000 cfs (142 cms), as described in the San Juan Flow Recommendations, is likely to occur.

Lake Powell

Reservoir storage in Lake Powell remains low (49 percent of capacity on September 30, 2007) due to effects of continuing drought in the Colorado River Basin. Lake Powell storage was 97 percent of capacity in July 1999. Extreme drought conditions were observed in the Colorado River Basin for five consecutive years (water years 2000-2004) with Lake Powell storage declining during this period. Lake Powell storage on September 30, 2004, was only 38 percent of capacity. Inflow was above average in 2005 and Lake Powell gained 2.77 maf (3,420 mcm) of storage during the water year. Below average inflow conditions returned in 2006 and continued in 2007.

Lake Powell began water year 2007 with 11.92 maf (14,700 mcm) of water in storage (49 percent of capacity). Water year 2007 unregulated inflow to Lake Powell was 8.231 maf (10,150 mcm), or 68 percent of average. As water year 2007 ended on September 30, 2007, Lake Powell storage was 11.93 maf (14,720 mcm), or 49 percent of capacity.

Due to continued low reservoir storage at Lake Powell, and storage in Lake Powell being less than Lake Mead, releases from Glen Canyon Dam in 2007 were scheduled to maintain the minimum release objective from Lake Powell of 8.23 maf (10,150 mcm) in accordance with Article II(2) of the Operating Criteria. Forecasted inflow to Lake Powell combined with observed reservoir storage in Lake Powell in 2007 was not sufficient to trigger storage equalization releases from Lake Powell to Lake Mead. The total release from Lake Powell in water year 2007 was 8.231 maf (10,150 mcm).

April through July unregulated inflow to Lake Powell in water year 2007 was 4.051 maf (5,000 mcm), or 51 percent of average. Lake Powell reached a seasonal peak elevation of 3,611.7 feet (1,100.8 meters), 88.3 feet (26.9 meters) from full pool, on June 25, 2007. On September 30, 2007, the water surface elevation of Lake Powell was 3,601.9 feet (1,097.8 meters), 98.1 feet (29.9 meters) from full pool.

Releases from Lake Powell during water year 2008 shall be made consistent with Section 6.B (Upper Elevation Balancing Tier) in the Interim Guidelines. Consistent with Section 6.B.1 of the Interim Guidelines, the water year release from Lake Powell in 2008 shall be 8.23 maf (10,150 mcm) unless provisions in Section 6.B.3 occur. Consistent with Section 6.B.3 of the Interim Guidelines, if the April 2008 24-Month Study projects the September 30, 2008, Lake Powell elevation to be greater than elevation 3,636 feet, Section 6.A (Equalization Tier) of the Interim Guidelines will govern the release of water from Lake Powell for the remainder of water year 2008 (through September 2008).

Under the most probable and probable minimum inflow scenarios, releases of 8.23 maf (10,150 mcm) would be made from Lake Powell in water year 2008. Under the probable maximum inflow condition, an annual release of approximately 11.51 maf (14,200 mcm) would be required to equalize storage between Lake Powell and Lake Mead on September 30, 2008. Under the most probable inflow in 2008, the projected water surface elevation at Lake Powell on September 30, 2008, will be 3,609.9 feet (1,100.3 meters) with 12.72 maf (15,690 mcm) of storage (52 percent of capacity).

Reclamation published a Notice of Intent in the *Federal Register* (71 *Federal Register* 74556, December 12, 2006) in December 2006 announcing Reclamation's intent to prepare an EIS on the adoption of a long-term experimental plan for the operation of Glen Canyon Dam and other associated management activities. The purpose of the plan is to increase scientific understanding of the ecosystem downstream from Glen Canyon Dam and to improve and protect important downstream resources, while minimizing impacts to hydropower capability and flexibility.

The Long-Term Experimental Plan (LTEP) EIS was initiated to consider dam operations, potential modifications to Glen Canyon Dam intake structures, and other potential management actions such as removal of non-native fish species in the Colorado River below Glen Canyon Dam. The LTEP EIS builds on a decade of scientific experimentation and monitoring that has taken place as part of the Glen Canyon Dam Adaptive Management Program (AMP), and builds on the knowledge gained by experiments, operations, and management actions taken under the AMP. The NEPA process for this EIS evaluates the implications and impacts of each of the alternatives on all of the purposes and benefits of Glen Canyon Dam as well as on downstream resources. Reclamation conducted public scoping meetings on January 4 and 5, 2007, in Phoenix and Salt Lake City, respectively. A scoping report was published on March 30, 2007. Subsequently, in December 2007, Reclamation re-initiated ESA Section 7 consultation with the Service on the operation of Glen Canyon Dam. This consultation also includes a proposed high flow test in March 2008. Steady flows in the months of September and October, for a five-year period, are also proposed in this consultation. After completion of the appropriate environmental compliance documentation by Reclamation on these actions, Reclamation will reassess the proposed long-term experimental plan and any other associated environmental compliance activities.

In March 2008, a high flow test may be implemented. As a result of information resulting from scientific monitoring and research activities and stakeholder discussions in the Glen Canyon Dam Adaptive Management Program, Reclamation has proposed a 2008 high flow test. The dam release characteristics of such a test would be identical to the test conducted in November 2004 (with a maximum release of about 41,500 cfs [1,175 cms] for 60 hours), but under much more highly enriched fine sediment conditions, a unique situation during the last 10 years. The purpose of this test would be to determine the effectiveness of rebuilding and reworking sandbar deposits and backwaters in Marble and Grand Canyons. A final decision on whether to conduct such a test is expected to be made in February 2008, after appropriate environmental compliance actions are complete. The annual volume of water released from Lake Powell for water year 2008 would not change as a result of the high flow test.

In 2008, scheduled maintenance activities at Glen Canyon Dam powerplant will require that one or more of the eight generating units periodically be offline. Coordination between Reclamation offices in Salt Lake City, Utah, and Page, Arizona, will take place in the scheduling of maintenance activities to minimize impacts, including those on potential experimental releases.

Because of less than full storage conditions in Lake Powell resulting from drought in the Colorado River Basin, releases for dam safety purposes are highly unlikely in 2008. If

implemented, releases greater than powerplant capacity would be made consistent with the 1956 Colorado River Storage Project Act, the 1968 Colorado River Basin Project Act, and the 1992 Grand Canyon Protection Act. Reservoir releases in excess of powerplant capacity required for dam safety purposes during high reservoir conditions may be used to accomplish the objectives of the beach/habitat-building flow according to the terms contained in the Glen Canyon Dam ROD and as published in the Glen Canyon Dam Operating Criteria (62 *Federal Register* 9447, March 3, 1997).

Daily and hourly releases in 2008 will be made according to the parameters of the ROD for the Glen Canyon Dam Final Environmental Impact Statement (GCDFEIS) and the Glen Canyon Dam Operating Criteria, as shown in Table 5. Exceptions to these parameters may be made during power system emergencies, during experimental releases, or for purposes of humanitarian search and rescue.

Table 5. Glen Canyon Dam Release Restrictions (Glen Canyon Dam Operating Criteria)

Parameter	(cfs)	(cms)	Conditions
Maximum Flow[15]	25,000	708.0	
Minimum Flow	5,000	141.6	7:00 pm to 7:00 am
	8,000	226.6	7:00 am to 7:00 pm
Ramp Rates			
Ascending	4,000	113.3	per hour
Descending	1,500	42.5	per hour
Daily Fluctuations[16]	5,000 / 8,000	141.6 / 226.6	

Releases from Lake Powell in water year 2008 will continue to reflect consideration of the uses and purposes identified in the authorizing legislation for Glen Canyon Dam. Powerplant releases will reflect criteria based on the findings, conclusions, and recommendations made in the ROD for the GCDFEIS pursuant to the Grand Canyon Protection Act of 1992 and appropriate NEPA documentation regarding experimental flows.

[15] May be exceeded during beach/habitat-building flows, habitat maintenance flows, or when necessary to manage above average hydrologic conditions.
[16] Daily fluctuations limit is 5,000 cfs (141.6 cms) for months with release volumes less than 0.600 maf (740 mcm); 6,000 cfs (169.9 cms) for monthly release volumes of 0.600 to 0.800 maf (740 to 987 mcm); and 8,000 cfs (226.6 cms) for monthly release volumes over 0.800 maf (990 mcm).

Projected monthly releases under the most probable inflow scenario, with and without the proposed high flow experiment, for water year 2008 are displayed in Table 6 and Table 7.

Table 6. Projected Monthly Releases from Lake Powell in Water Year 2008 Under Most Probable Inflow Conditions (English Units)[17]

Month	Monthly Release without the High Flow Experiment (maf)	Monthly Release with the High Flow Experiment (maf)
October 2007	0.600	0.600
November 2007	0.600	0.600
December 2007	0.800	0.800
January 2008	0.800	0.800
February 2008	0.600	0.600
March 2008	0.600	0.830
April 2008	0.600	0.555
May 2008	0.600	0.555
June 2008	0.650	0.650
July 2008	0.850	0.820
August 2008	0.900	0.820
September 2008	0.630	0.600

Table 7. Projected Monthly Releases from Lake Powell in Water Year 2008 Under Most Probable Inflow Conditions (Metric Units)

Month	Monthly Release without the High Flow Experiment (mcm)	Monthly Release with the High Flow Experiment (mcm)
October 2007	740	740
November 2007	740	740
December 2007	987	987
January 2008	987	987
February 2008	740	740
March 2008	740	1024
April 2008	740	685
May 2008	740	685
June 2008	802	802
July 2008	1048	1011
August 2008	1110	1011
September 2008	777	740

The ten-year total flow of the Colorado River at Lee Ferry[18] for water years 1998 through 2007 is 93.2 maf (115,000 mcm). This total is computed as the sum of the flow of the Colorado River at Lees Ferry, Arizona and the Paria River at Lees Ferry, Arizona, surface-water discharge stations, which are operated and maintained by the United States Geological Survey.

[17] Modifications to projected monthly releases from Lake Powell would be made based on changes in forecast conditions or other relevant factors.
[18] A point in the mainstream of the Colorado River one mile below the mouth of the Paria River.

Lake Mead

For calendar year 2007, the Partial Domestic Surplus Condition was the criterion governing the operation of Lake Mead in accordance with Article III(3)(b) of the Operating Criteria, Article II(B)(2) of the Consolidated Decree, and Section 2(B)(1) of the Interim Surplus Guidelines. It should be noted, however, that the projected releases in 2007 reflected demand under the Normal Condition for MWD, Central Arizona Project (CAP), and SNWA, per their request. This did not, however, preclude MWD, CAP, and SNWA from requesting Partial Domestic Surplus water in calendar year 2007. A volume of 1.500 maf (1,852 mcm) of water was scheduled for delivery to Mexico in accordance with Article 15 of the 1944 United States-Mexico Treaty and Minutes No. 242 and 310 of the International Boundary and Water Commission.

Lake Mead began water year 2007 on October 1, 2006, at elevation 1,125.4 feet (343.0 meters), with 13.89 maf (17,130 mcm) in storage, which is 54 percent of the conservation capacity of 25.88 maf (31,923 mcm). Lake Mead's elevation increased to elevation 1,129.55 feet (344.3 meters) by the end of January 2007. After January 2007, Lake Mead steadily declined and ended the water year on September 30, 2007, at an elevation of 1,111.06 feet (338.7 meters), with 12.51 maf (15,430 mcm) in storage (48 percent of capacity).

The total release from Lake Mead through Hoover Dam during water year 2007 was 9.452 maf (11,659 mcm). The total release from Lake Mead through Hoover Dam during calendar year 2007 is projected to be 9.375 maf (11,560 mcm). Consumptive use from Lake Mead during calendar year 2007 resulting from diversions for Nevada above Hoover Dam are projected to be 0.297 maf (366.3 mcm).

The total inflow into Lake Mead is a combination of water released from Glen Canyon Dam plus inflows from the tributaries in the reach between Glen Canyon and Hoover Dams. In water year 2007, inflow into Lake Mead was 8.906 maf (10,985 mcm). For water year 2008, under the most probable assumptions, total inflow into Lake Mead is anticipated to be 9.120 maf (11,249 mcm).

Under the most probable inflow conditions during water year 2008, Lake Mead will be at its maximum elevation of 1,117.31 feet (340.6 meters), with 13.10 maf (16,159 mcm) in storage, at the end of February 2008. Lake Mead will likely decline during water year 2008 to reach its minimum elevation of approximately 1,099.29 feet (335.1 meters), with approximately 11.43 maf (14,099 mcm) in storage, at the end of July 2008.

Based on the August 2007 24-Month Study, Lake Mead's elevation on January 1, 2008, was projected to be 1,114.73 feet (339.8 meters). Therefore, in accordance with Section 2.B.5 of the Interim Guidelines, the ICS Surplus Condition will govern the releases from Lake Mead in calendar year 2008. Releases from Lake Mead through Hoover Dam for water year and calendar year 2008 are anticipated to be approximately the same as 2007 releases.

In September 2005, Reclamation initiated a process in accordance with NEPA to develop additional operational guidelines for Lake Powell and Lake Mead in response to the

continued drought and increasing water demands on the system. A ROD adopting the Interim Guidelines was signed by the Secretary on December 13, 2007.

The Interim Surplus Guidelines ROD included ESA conservation measures. One such conservation measure specified in Article X(4)(1) includes provisions for spawning razorback suckers in Lake Mead. Reclamation continues to provide funding and support for the ongoing Lake Mead Razorback Sucker study. The focus of the study has been on locating populations of razorbacks in Lake Mead, documenting use and availability of spawning areas at various water elevations, continuing aging studies, and confirming recruitment events. Based on the anticipated operation of Lake Powell for water year 2008, no changes in operations to provide rising elevations in Lake Mead are expected in the spring of 2008.

Lakes Mohave and Havasu

At the beginning of water year 2007, Lake Mohave was at an elevation of 638.76 feet (194.7 meters), with an active storage of 1.584 maf (1,954 mcm). The water level of Lake Mohave was regulated between elevation 634.3 feet (193.3 meters) and 644.6 feet (196.5 meters) throughout the water year, ending at an elevation of 637.3 feet (194.2 meters) with 1.545 maf (1,906 mcm) in storage. The total release from Lake Mohave through Davis Dam for water year 2007 was 9.243 maf (11,401 mcm) for downstream water use requirements. The calendar year 2007 total release is projected to be 9.087 maf (11,209 mcm).

For water year and calendar year 2008, Davis Dam is expected to release approximately the same amount of water as in 2007. The water level in Lake Mohave will be regulated between an elevation of approximately 633 feet (193 meters) and 645 feet (197 meters).

Lake Havasu started water year 2007 at an elevation of 446.7 feet (136.1 meters) with 0.555 maf (684.6 mcm) in storage. The water level of Lake Havasu was regulated between elevation 446.7 feet (136.2 meters) and 448.6 feet (136.7 meters), throughout the water year, ending at an elevation of 447.8 feet (136.5 meters), with 0.576 maf (710 mcm) in storage. During water year 2007, 6.806 maf (8,395 mcm) were released from Parker Dam. The calendar year 2007 total release is projected to be 6.812 maf (8,402 mcm). Diversions from Lake Havasu during calendar year 2007 by CAP and MWD are projected to be 1.569 maf (1,935 mcm) and 0.697 maf (860 mcm), respectively.

For water year 2008, Parker Dam is expected to release approximately the same amount of water as in water year 2007. Diversions from Lake Havasu in calendar year 2008 by CAP and MWD are expected to be 1.575 maf (1,943 mcm) and 0.784 maf (967 mcm), respectively.

Lakes Mohave and Havasu are scheduled to be drawn down in the late summer and fall months to provide storage space for local storm runoff and will be filled in the winter to meet higher summer water needs. This drawdown will also correspond with normal maintenance at both Davis and Parker powerplants which is scheduled for September through February.

At Davis Dam, a major overhaul of Unit No. 2 is scheduled for October 1, 2007, through March 6, 2008. This overhaul will include removal and maintenance of the fixed wheel gate and hydraulic cylinder, as well as testing the generator windings. Rehabilitation of the fixed wheel gates of Units 5, 4, and 3, were completed in water years 2005, 2006, and 2007, respectively. Rehabilitation of the fixed wheel gate of Unit 1 is tentatively scheduled for water year 2009.

At Parker Dam, the stainless steel turbine was replaced and the generator was re-wound on Unit 3 in calendar year 2006. A major turbine overhaul of Unit 1 is scheduled for September 7, 2007, through February 29, 2008.

During 2008, Lake Mohave will continue to be operated under the constraints as described in the Interim Surplus Guidelines' Biological Opinion on Lower Colorado River Operations and Maintenance, as extended through the LCR MSCP Biological and Conference Opinion. Reclamation, as provided in the LCR MSCP ROD, will continue these existing operations in Lake Mohave that benefit native fish and will explore additional ways to provide benefits to native fish. The normal filling and drawdown pattern of Lake Mohave coincides well with the fishery spawning period. Since lake elevations for Lake Mohave and Lake Havasu 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, a multi-agency group of scientists attempting to augment the aging stock of the endangered razorback sucker in Lake Mohave. Larval razorback suckers are captured by hand in and around spawning areas in late winter and early spring for rearing at Willow Beach National Fish Hatchery below Hoover Dam. The following year, 1-year old razorback suckers are placed into predator-free, lake-side backwaters for rearing through the spring and summer. When Lake Mohave is normally drawn down during August through October, these fish are harvested from these rearing areas and then released into Lake Mohave. The razorback suckers grow very quickly, usually exceeding 10 inches (254 mm) in length by September.

Between February and April 2007, some 20,568 wild razorback sucker larvae were captured from spawning congregations on Lake Mohave and delivered to Willow Beach National Fish Hatchery for initial rearing. Approximately 1,000 subadult razorback suckers were stocked into lake-side ponds during March 2007. These latter fish were harvested in the fall of 2007.

Bill Williams River

Tributary inflows were below average for water year 2007. Abnormally dry to extreme drought conditions persisted for water year 2007 throughout western Arizona, including the Bill Williams River watershed. Tributary inflow from the Bill Williams River into the mainstream of the Colorado River totaled 0.025 maf (30.84 mcm) for water year 2007, approximately 25 percent of the long-term average.

Releases in water year 2007 from the United States Army Corp of Engineers' (USACE's) Alamo Dam were coordinated with the Service and the Bill Williams Steering Committee to maintain riparian habitat established in water year 2005 and 2006. Alamo Lake elevation

was approximately 1,119.8 feet (341.3 meters) after October 1, 2006. A storage volume of 0.002 maf (2.47 mcm), equivalent to the storage between approximately elevations 1,116.0 feet (340.2 meters) and 1,115.4 feet (340.0 meters), was released from April 9, 2007, to April 10, 2007. The purpose of the release was to maintain downstream riparian habitat. The April 9-10, 2007, release from Alamo Dam increased from approximately 40 cfs (1 cms) to approximately 1,000 cfs (30 cms) for an 18-hour period, tapering to approximately 40 cfs (1 cms) over the following day. Data collection associated with Alamo Dam releases supports ongoing studies conducted by the Bill Williams Steering Committee. The Bill Williams Steering Committee is chaired by the Service and is comprised of other stakeholders, including, but not limited to, Reclamation, the USACE, the Bureau of Land Management, and other governmental and non-governmental organizations.

Senator Wash and Laguna Reservoirs

Operations at Senator Wash Reservoir allow regulation of water deliveries to United States water users upstream and downstream of Imperial Dam and Mexican water users downstream of Imperial Dam. The reservoir is utilized as an off-stream storage facility to meet downstream water demands and to conserve water for future uses in the United States and the scheduled uses of Mexico in accordance with the 1944 United States-Mexico Water Treaty obligations. Senator Wash Reservoir is the only major storage facility below Parker Dam (approximately 142 river miles downstream) and has a storage capacity of 0.014 maf (17.27 mcm) at full pool elevation of 251.0 feet (76.5 meters). Operational objectives are to store excess flows from the river caused by water user cutbacks and side wash inflows due to rain. Stored waters are utilized to meet the United States' and Mexico's demands.

Since 1992 elevation restrictions have been placed on Senator Wash Reservoir due to potential piping and liquefaction of foundation and embankment materials at West Squaw Lake Dike and Senator Wash Dam. Currently, Senator Wash is restricted to an elevation of 240.0 feet (73.2 meters) with 0.009 maf (11.10 mcm) of storage, a loss of about 0.005 maf (6.167 mcm) of storage from its original capacity. Senator Wash Reservoir elevation must not exceed elevation 240.0 feet (73.2 meters) for more than 10 consecutive days. This reservoir restriction is expected to continue in 2008.

Laguna Reservoir is a regulating storage facility located approximately five river miles downstream of Imperial Dam. Operational objectives are similar to those for Senator Wash Reservoir and the reservoir is primarily used to capture sluicing flows from Imperial Dam. The storage capability of Laguna Reservoir has diminished from about 1,500 acre-feet (1.850 mcm) to approximately 400 acre-feet (0.493 mcm) due to sediment accumulation and vegetation growth. Sediment accumulation in the reservoir has occurred primarily due to flood releases that occurred in 1983 and 1984, and flood control or space building releases that occurred between 1985 and 1988 and from 1997 through 1999. Action to restore the lost capacity to 1,500 acre-feet at the Laguna Reservoir is ongoing. It is anticipated that dredging to restore its capacity will begin in early 2008, and be completed within a 3 year period, subject to the availability of funds.

Imperial Dam

Imperial Dam is the last diversion dam on the Colorado River for United States water users. From the head works at Imperial Dam, the diversions of flows for the United States' and Mexico's water users occur into the All-American Canal on the California side, and into the Gila Gravity Main Canal on the Arizona side of the dam. These diversions supply all the irrigation districts in the Yuma area, in Wellton-Mohawk, in the Imperial and Coachella Valleys, and through Siphon Drop and Pilot Knob to the Northerly International Boundary (NIB) for diversion at Morelos Dam to the Mexicali Valley in Mexico. The diversions also supply much of the domestic and industrial water needs in the Yuma area. Flows arriving at Imperial Dam for calendar year 2007 were expected to be 6.812 maf (8,402 mcm). The flows arriving at Imperial Dam for calendar year 2008 were anticipated to be approximately the same as calendar year 2007.

Gila River Flows

Drought conditions persisted for water 2007 throughout the Lower Division States and the southwestern United States. Abnormally dry to extreme drought conditions persisted throughout Arizona, contributing to 79 percent of average precipitation being recorded in the Gila River Basin. During water year 2007, no tributary inflow from the Gila River reached the mainstream of the Colorado River.

Additional Regulatory Storage

In 2004 Reclamation completed a study that evaluated the needs and developed options for additional water storage facilities on the mainstream of the Colorado River below Parker Dam. The study, developed in cooperation with IID, Coachella Valley Water District (CVWD), San Diego County Water Authority (SDCWA), and MWD, recommended the construction of additional storage north of the Drop 2 portion of the All-American Canal.

The Drop 2 Storage Reservoir is in the final engineering design phase. The purpose of the planned 0.008 maf (9.875 mcm) reservoir is the same as Senator Wash and it will be operated similar to Senator Wash to capture extra water in the system, especially during storm events. The reservoir will make up for the loss of water storage at Senator Wash because of the operational restrictions and allow for additional regulatory storage. Additional storage will allow for more efficient management of water below Parker Dam.

Construction of the first phase of the Drop 2 Storage Reservoir is scheduled to start in calendar year 2008, pursuant to federal law, with a tentative completion date in calendar year 2010. Two agreements[19] were executed concurrent with the Interim Guidelines ROD that fund the construction of the Drop 2 Storage Reservoir and the integral confluence structure and provide for the funding parties to receive quantities of System Efficiency ICS in consideration for their financial contributions.

[19]Funding and Construction of the Lower Colorado River Drop 2 Storage Reservoir Project Agreement among the United States, SNWA, and the CRCN; Advance Funding and Construction of a Confluence Structure as an Integral Component of the Lower Colorado River Drop 2 Storage Reservoir Project Agreement among the United States of America, SNWA and the Imperial Irrigation District (IID)

Yuma Desalting Plant

In calendar year 2007 the amount of water discharged through the Main Outlet Drain (bypass flows) was anticipated to be 0.110 maf (135.7 mcm) at an approximate concentration of total dissolved solids of 2,430 parts per million (ppm). Water users in the Colorado River Basin have raised concerns over the continued bypass of Wellton-Mohawk agricultural return flow around Morelos Dam to the Cienega de Santa Clara, a wetland of approximately 40,000 acres (16,200 hectares) of open water and vegetation that is within a Biosphere Reserve in Mexico. These flows do not count as part of Mexico's 1.500 maf (1,850 mcm) allotment under the 1944 United States-Mexico Water Treaty.

On October 26, 2005, Reclamation submitted to Congress a report that describes activities required to operate the Yuma Desalting Plant (YDP), provides an estimate of how long those activities would take, and presents a current estimate of their anticipated cost. In addition, this report explores interim and/or supplemental opportunities for replacement of water that is bypassed into Mexico, including options that do not potentially have an adverse impact on the Cienega de Santa Clara. Reclamation initiated the Bypass Flow Public Consultation Process on September 22, 2005, to investigate options to replace or recover the bypass flows. One option included an operational demonstration of YDP in conjunction with the System Conservation (SC) Demonstration Program. Reclamation anticipates the Bypass Flow Public Consultation Process will conclude in 2008.

From March 1, 2007, to May 31, 2007, the YDP concluded a three-month operating run. The demonstration operation of the plant was the culmination of one year of preparation. The demonstration was designed to meet five objectives: 1) demonstrate the operability of the plant, 2) demonstrate the plant's use of current technologies, 3) validate cost and performance estimates for the plant, 4) improve overall plant readiness, and 5) provide measurements of water quality impacts to the Cienega de Santa Clara. All five objectives were successfully achieved.

By the conclusion of the three-month run, 4,349 acre-feet (5.364 mcm) had been delivered to the Colorado River and included in water deliveries to Mexico, preserving an equivalent volume in Colorado River system storage. The plant produced 2,632 acre-feet (3.247 mcm) of product water which was blended with 1,717 acre-feet (2.118 mcm) of untreated bypass flow prior to discharge into the Colorado River.

Intentionally Created Surplus

The Interim Guidelines ROD included the adoption of the ICS mechanism that among other things encourages the efficient use and management of Colorado River water in the Lower Basin. ICS may be created through several types of projects that create water system efficiency or extraordinary conservation or tributary conservation or the importation of non-Colorado River System water into the Colorado River mainstream. The creation and delivery of ICS during the term of the Interim Guidelines is conditioned upon several

implementing agreements[20] that were executed concurrent with the Interim Guidelines ROD. ICS may be created and delivered in 2008 in compliance with the Interim Guidelines and appropriate delivery and forbearance agreements. Subject to the appropriate approvals and implementing agreements, SNWA is contemplating the creation and delivery of Tributary Conservation ICS from the Muddy and Virgin Rivers project and MWD is contemplating the creation and delivery of System Efficiency ICS from the Drop 2 Reservoir Storage project. MWD is also contemplating creation and/or delivery of Extraordinary Conservation ICS depending upon water supply and demand conditions in MWD's service area.

Intentionally Created Surplus Water Demonstration Program

In 2006 Reclamation implemented a demonstration program in the Lower Basin to create Intentionally Created Surplus Water (ICS Demonstration Program). The ICS Demonstration Program allowed entitlement holders to undertake extraordinary conservation activities in 2006 and 2007 to reduce their approved annual consumptive use of Colorado River water and account for that conserved water in Lake Mead.[21] The ICS created and accounted for under the ICS Demonstration Program is now available for delivery pursuant to the Interim Guidelines and implementing agreements.

Reclamation entered into an agreement with MWD for the creation of Intentionally Created Surplus Water in calendar year 2006.[22] Although MWD may, either separately or in conjunction with other California agencies with rights to use Colorado River water, create up to 0.200 maf (246.7 mcm) in calendar year 2007, MWD does not anticipate the creation of ICS water in calendar year 2007. In 2008, MWD may take delivery of up to 0.046 maf (56.74 mcm) of Intentionally Created Surplus Water created under the ICS Demonstration Program.

Reclamation also entered into an agreement with IID for the creation of Intentionally Created Surplus Water in 2006.[23] Although IID may undertake extraordinary conservation measures to create up to 0.025 maf (30.84 mcm) in calendar year 2007, IID does not anticipate the creation of Intentionally Created Surplus Water in calendar year 2007.

System Conservation of Colorado River Water Demonstration Program

In 2006 Reclamation implemented the System Conservation of Colorado River Water Demonstration Program (SC Demonstration Program) in the Lower Basin which allows

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[20] Delivery Agreement between the United States and IID; Delivery Agreement between the United States and MWD; Delivery Agreement between the United States, SNWA and the CRCN; Lower Colorado River Basin Intentionally Created Surplus Forbearance Agreement among the Arizona Department of Water Resources, SNWA, CRCN, the Palo Verde Irrigation District (PVID), IID, CVWD, MWD, and the City of Needles; and the California Agreement for the Creation and Delivery of Extraordinary Conservation Intentionally Created Surplus among the PVID, IID, CVWD, MWD and the City of Needles

[21] No ICS Water is projected to be conserved in calendar year 2007 by MWD and IID.

[22] Agreement between Reclamation and MWD to Implement a Demonstration Program to Create Intentionally Created Surplus Water, May 18, 2006

[23] Agreement between Reclamation and IID to Implement a Demonstration Program to Create Intentionally Created Surplus Water, June 26, 2006

entitlement holders to participate in voluntary conservation to conserve a portion of their approved annual consumptive use of Colorado River water in exchange for appropriate compensation provided by Reclamation.[24] The water conserved (SC Water) is retained in Lake Mead to assist in providing an interim, supplemental source of water to replace the drainage water from the Wellton-Mohawk Irrigation and Drainage District that is bypassed to the Cienega de Santa Clara and the reject stream from operation of the Yuma Desalting Plant.

Reclamation entered into an agreement with MWD for the creation of SC Water in 2006.[25] Through this program, MWD has undertaken extraordinary measures to conserve 0.007 maf (8.634 mcm) of SC Water in calendar year 2007. This water is retained in Lake Mead.

Delivery of Water to Mexico

Total delivery to Mexico for calendar year 2007 was projected to be approximately 1.517 maf (1,871 mcm), with excess flow of approximately 0.017 maf (20.97 mcm). Of the total delivery, approximately 0.140 maf (172.8 mcm) is projected to be delivered at the Southerly International Boundary (SIB) and 1.377 maf (1,699 mcm) was projected to be delivered at the NIB. The excess flows in 2007 resulted from a combination of rejected water from water users after rain storms, side-wash inflow into the Colorado River, and spills from irrigation facilities below Imperial Dam to the river. As part of Mexico's delivery schedule, it is anticipated that 602 acre-feet (0.743 mcm) will be diverted from Lake Havasu and delivered through MWD, San Diego County Water Authority, and the Otay Water District's respective distribution system facilities to Tijuana, Baja California at the request of the Mexican section of the IBWC in calendar year 2007.

In 2008, it is anticipated that 0.140 maf (172.7 mcm) will be delivered to Mexico at the SIB. In accordance with Minute No. 310 and the Emergency Delivery Agreement[26] up to 0.001 maf per month (1.233 mcm) may be delivered for Tijuana through MWD, San Diego County Water Authority, and the Otay Water District's respective distribution system facilities in California. The remainder of Mexico's available water will be delivered at NIB.

To further improve control of the deliveries of water from Parker Dam, Senator Wash Reservoir and the reservoirs behind Imperial Dam and Laguna Dam will continue to be operated at lower elevations during periods of potential rain storms to capture flows in excess of water demand at Imperial Dam. As mentioned previously, the Drop 2 Storage Reservoir will improve control of water deliveries below Parker Dam once construction is complete.

Drainage flows to the Colorado River from the Yuma Mesa Conduit and South Gila Conduit were projected to be 0.045 maf (55.5 mcm) and 0.065 maf (80.18 mcm), respectively, for calendar year 2007. As stated in Minute 242, the maximum allowable salinity differential is

[24] In calendar year 2007, it was assumed that 7,000 acre-feet of SC Water would be conserved.
[25] Agreement between Reclamation and MWD to Implement a Demonstration Program for System Conservation of Colorado River Water, August 15, 2006
[26] "The Agreement for Temporary Emergency Delivery of a Portion of the Mexican Treaty Waters of the Colorado River to the International Boundary in the Vicinity of Tijuana, Baja California, Mexico, and for Operation of the Facilities in the United States," applicable through November 9, 2008

145 ppm by the United States' measurement or count and 151 ppm by the Mexican count. The salinity differential for calendar year 2007 is projected to be 143 ppm by the United States' count.

Mexico has identified four critical months, October through January, regarding improving the quality of water delivered at the SIB. As a matter of comity, the United States has agreed to reduce the salinity of water delivered at SIB during this period. To accomplish the reduction in salinity, the United States constructed a diversion channel to bypass up to 0.008 maf (9.868 mcm) of Yuma Valley drainage water during the four critical months identified by Mexico. This water will be replaced by better quality water from the Minute 242 well field to reduce the salinity at SIB. Facilities required for real-time monitoring and control of the flow and salinity of water delivered to SIB will be operational in calendar year 2008. No water is projected to be bypassed in 2007, however, up to 0.008 maf (9.868 mcm) could be spilled to the diversion channel for salinity control in 2008.

2008 DETERMINATIONS

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

Upper Basin Reservoirs

Releases from Lake Powell during water year 2008 shall be made consistent with Section 6 of the Interim Guidelines. Under the most probable and minimum probable inflow scenario, releases from Lake Powell will be made consistent with Section 6.B.1 of the Interim Guidelines, with a water year release of 8.23 maf (10,150 mcm). Under the maximum probable inflow scenario, Section 6.A, the Equalization Tier, of the Interim Guidelines would control the release of water from Lake Powell in water year 2008.

Pursuant to Section 602(b) of the Colorado River Basin Project Act and Section 1804(c)(3) of the Grand Canyon Protection Act, the Secretary is required to develop this AOP in consultation with the Upper Colorado River Commission, representatives from the three Lower Division States, and with the general public. Section 602(a) of the Colorado River Basin Project Act provides for the storage of Colorado River water in Upper Basin reservoirs and the release of water from Lake Powell that the Secretary finds reasonably necessary to assure deliveries to comply with Articles III(c), III(d), and III(e) of the 1922 Colorado River Compact without impairment to the annual consumptive use in the Upper Basin. 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 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.

Taking into consideration all relevant factors required by Section 602(a)(3) of the Colorado River Basin Project Act and the Operating Criteria, it is determined that the active storage in Upper Basin reservoirs forecast for September 30, 2008, under the most probable inflow scenario would not exceed the storage required under Section 602(a) of the Colorado River

Basin Project Act. Consistent with Section 6.B.3 of the Interim Guidelines, if the April 2008 24-Month Study projects the September 30, 2008, Lake Powell elevation to be greater than elevation 3,636 feet, the Equalization Tier, Section 6.A of the Interim Guidelines will govern the release of water from Lake Powell for the remainder of water year 2008 (through September 2008).

Lower Basin Reservoirs

Pursuant to Article III of the Operating Criteria and consistent with the Consolidated Decree, water shall be released or pumped from Lake Mead to meet the following requirements:

(a) 1944 United States-Mexico 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; and
(f) Flood control.

The Operating Criteria provide that after the commencement of delivery of mainstream water by means of the CAP, the Secretary will determine the extent to which the reasonable beneficial consumptive use requirements of mainstream users are met in the Lower Division States. 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 7.500 maf (9,251 mcm) of consumptive use in accordance with Article III(3)(a) of the Operating Criteria and Article II(B)(1) of the Consolidated Decree. The Surplus Condition is defined as annual pumping and release from Lake Mead sufficient to satisfy in excess of 7.500 maf (9,251 mcm) of consumptive use in accordance with Article III(3)(b) of the Operating Criteria and Article II(B)(2) of the Consolidated Decree. An ICS Surplus Condition is defined as a year in which Lake Mead's elevation is projected to be above elevation 1,075 feet on January 1, a Flood Control Surplus has not been determined, and delivery of ICS has been requested. The Secretary may determine an ICS Surplus Condition in lieu of a Normal Condition or in addition to other operating conditions that are based solely on the elevation of Lake Mead. The Shortage Condition is defined as annual pumping and release from Lake Mead insufficient to satisfy 7.500 maf (9,251 mcm) of consumptive use in accordance with Article III(3)(c) of the Operating Criteria and Article II(B)(3) of the Consolidated Decree.

The Interim Guidelines, which became effective December 13, 2007, and are being utilized in calendar year 2008, serve to implement the narrative provisions of Article III(3)(a), Article III(3)(b), and Article III(3)(c) of the Operating Criteria and Article II(B)(1), Article II(B)(2), and Article II(B)(3) of the Consolidated Decree for the period through 2026. These specific interim guidelines will be used annually by the Secretary to determine the quantity of water available for use within the Lower Division States.

Consistent with the Interim Guidelines, the August 2007 24-Month Study was used to forecast the system storage as of January 1, 2008. Based on this projected elevation of Lake

Mead and consistent with Section 2.B.5 of the Interim Guidelines, the ICS Surplus Condition will govern releases for use in the states of Arizona, Nevada, and California during calendar year 2008 in accordance with Article III(3)(b) of the Operating Criteria and Article II(B)(2) of the Consolidated Decree.

Article II(B)(6) of the Consolidated Decree allows the Secretary to allocate water that is apportioned to one Lower Division State but is for any reason unused in that state to another Lower Division State. This determination is made for one year only, and no rights to recurrent use of the water accrue to the state that receives the allocated water. No unused apportionment for calendar year 2008 is anticipated. If any unused apportionment becomes available after adoption of this AOP, Reclamation, on behalf of the Secretary, shall allocate any such available unused apportionment for calendar year 2008 in accordance with Article II(B)(6) of the Consolidated Decree.

Water may be made available for diversion pursuant to 43 CFR Part 414 to contractors within the Lower Division States. The Secretary shall make Intentionally Created Unused Apportionment (ICUA) available to contractors in Arizona, California, or Nevada for the off-stream storage or consumptive use of water pursuant to individual SIRA agreements and 43 CFR Part 414. In calendar year 2007, approximately 0.017 maf (20.97 mcm) of ICUA water stored in Arizona was projected to be recovered for use in California by MWD. In calendar year 2008, 0.025 maf (30.84 mcm) of ICUA water stored in Arizona is projected to be recovered for use in California by MWD. SNWA may propose to make from 0.015 to 0.025 maf (18.5 to 30.8 mcm) of unused Nevada basic apportionment available for storage by MWD in 2008.

On October 10, 2003, the Secretary approved the ROD for the Inadvertent Overrun and Payback Policy (IOPP) which became effective January 1, 2004. The IOPP is in effect during calendar year 2008 with calendar year 2006 paybacks to begin in calendar year 2008.

The Colorado River Water Delivery Agreement also requires payback of California overruns occurring in 2001 and 2002 as noted in Exhibit C of that document. Each district with a payback obligation under Exhibit C may at its own discretion elect to accelerate paybacks. It is anticipated that California paybacks for calendar years 2007 and 2008 will total 0.040 maf (49.34 mcm) and 0.013 maf (16.04 mcm), respectively.

In calendar years 2007 and 2008, paybacks occurring in California result from Exhibit C obligations and IOPP overruns. In calendar years 2007 and 2008, paybacks for Arizona result only from IOPP overruns.

During calendar year 2007, the scheduled Arizona paybacks were expected to total 606 ac-ft (0.75 mcm). In calendar year 2008, Arizona paybacks are projected to total 3,570 ac-ft (4.40 mcm). Given the limitation of available supply and the low inflow amounts within the Colorado River Basin, the Secretary, through Reclamation, will continue to review Lower Basin operations to assure that all deliveries and diversions of mainstream water are in strict accordance with the Consolidated Decree, applicable statutes, contracts, rules, and agreements.

As provided in Section 7.C of the Interim Guidelines, the Secretary may undertake a mid-year review to consider revisions of the current AOP. For Lake Mead, the Secretary shall revise the determination in any mid-year review for the current year only to allow for additional deliveries from Lake Mead pursuant to Section 2 of the Interim Guidelines.

1944 United States-Mexico Water Treaty

Under the most probable, probable minimum, and probable maximum inflow scenarios, water in excess of that required to supply uses in the United States will not be available. Vacant storage space in mainstream reservoirs is substantially greater than that required by flood control regulations. Therefore, a volume of 1.500 maf (1,850 mcm) of water will be available to be scheduled for delivery to Mexico during calendar year 2008 in accordance with Article 15 of the 1944 United States-Mexico Water Treaty and Minutes 242 and 310 of the IBWC.

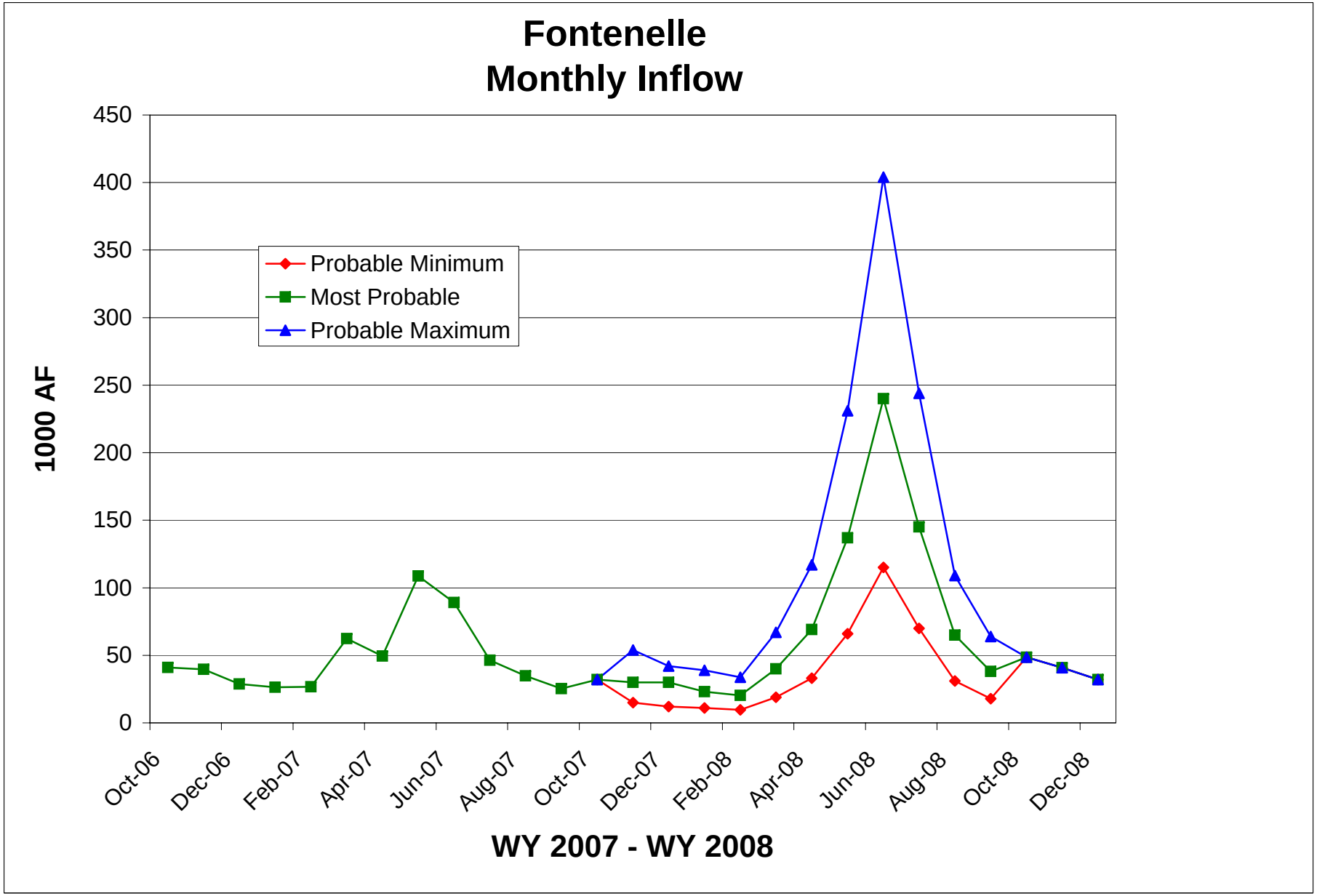
Calendar year schedules of the monthly deliveries of Colorado River water are formulated by the Mexican Section of the IBWC and presented to the United States Section before the beginning of each calendar year. Pursuant to the 1944 United States-Mexico Water Treaty, the monthly quantity prescribed by those schedules may be increased or decreased by not more than 20 percent of the monthly quantity, upon 30 days notice in advance to the United States Section. Any change in a monthly quantity is offset in another month so that the total delivery for the calendar year is unchanged.

DISCLAIMER

Nothing in this AOP 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 Consolidated Decree entered by the Supreme Court of the United States in *Arizona v. California* (547 U.S 150 (2006)); 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 Grand Canyon Protection Act of 1992 (Title XVIII of Public Law 102-575, 106 Stat. 4669).

ATTACHMENT I

Monthly inflow, monthly release, and end of month contents for Colorado River reservoirs (October 2006 through December 2008) under the probable maximum, most probable, and probable minimum inflow scenarios, and historic end of month contents.


Fontenelle
Monthly Inflow
1000 AF
450
400
350
300
250
200
150
100
50
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
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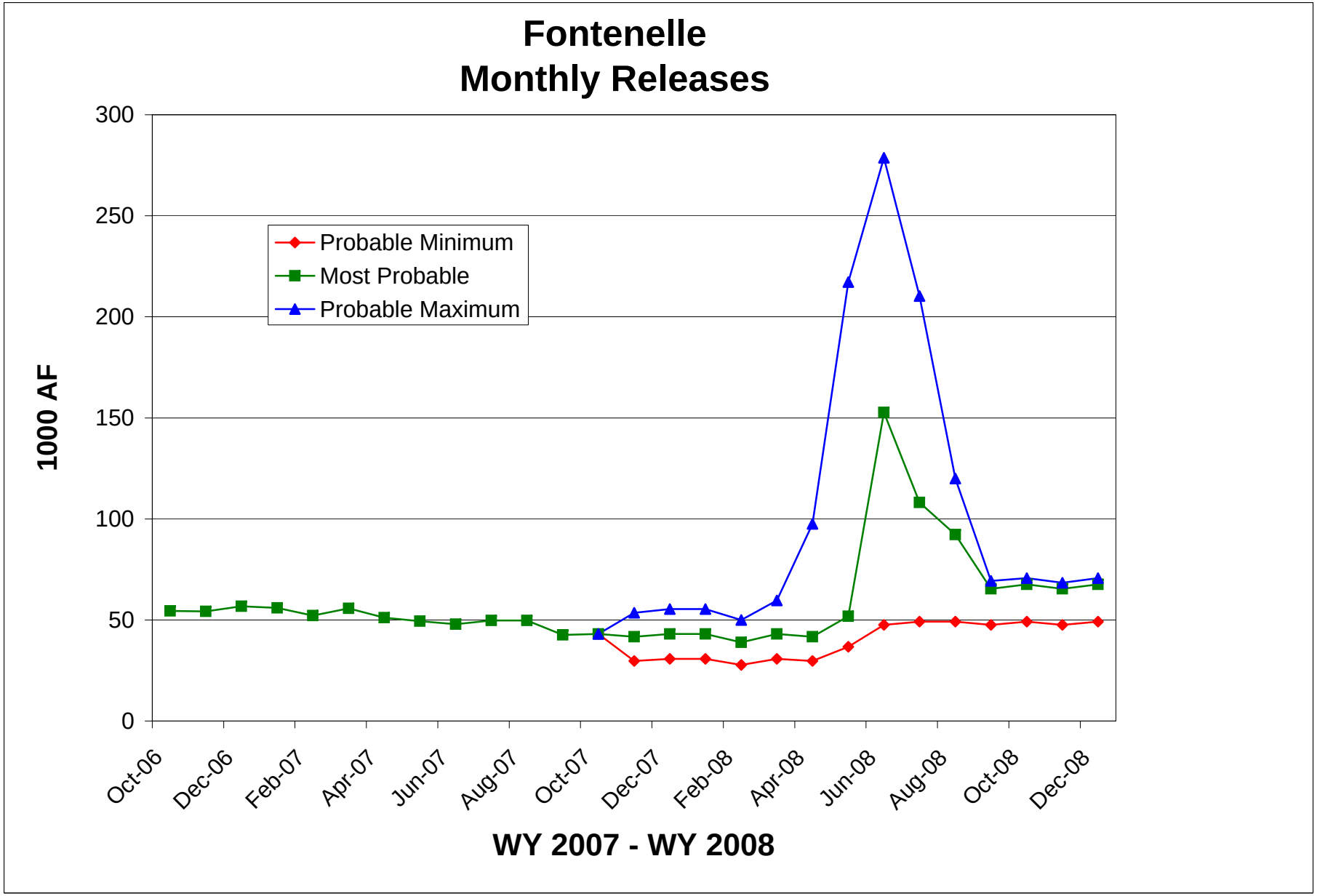
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008


Fontenelle
Monthly Releases
1000 AF
300
250
200
150
100
50
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
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Feb-07
Apr-07
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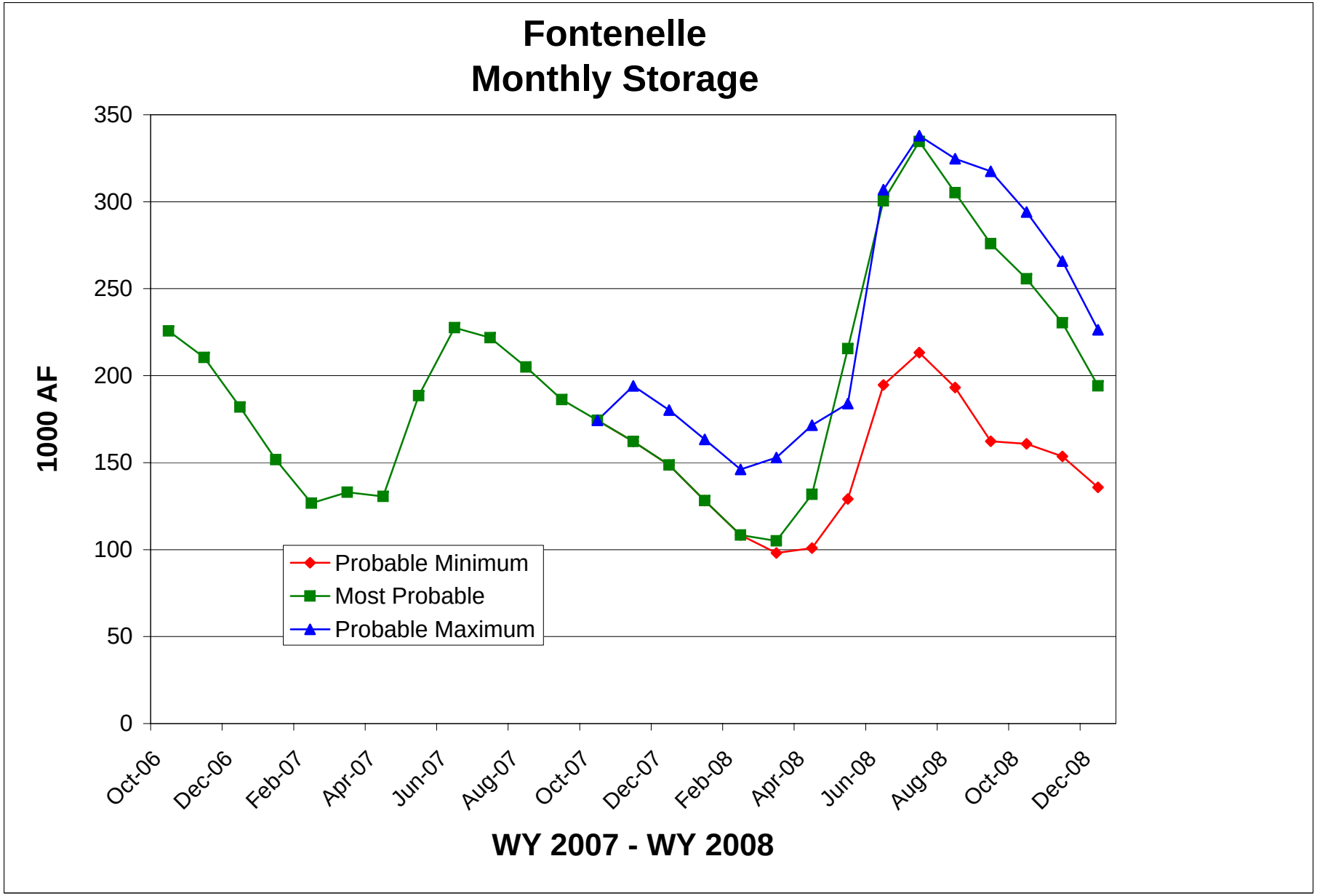
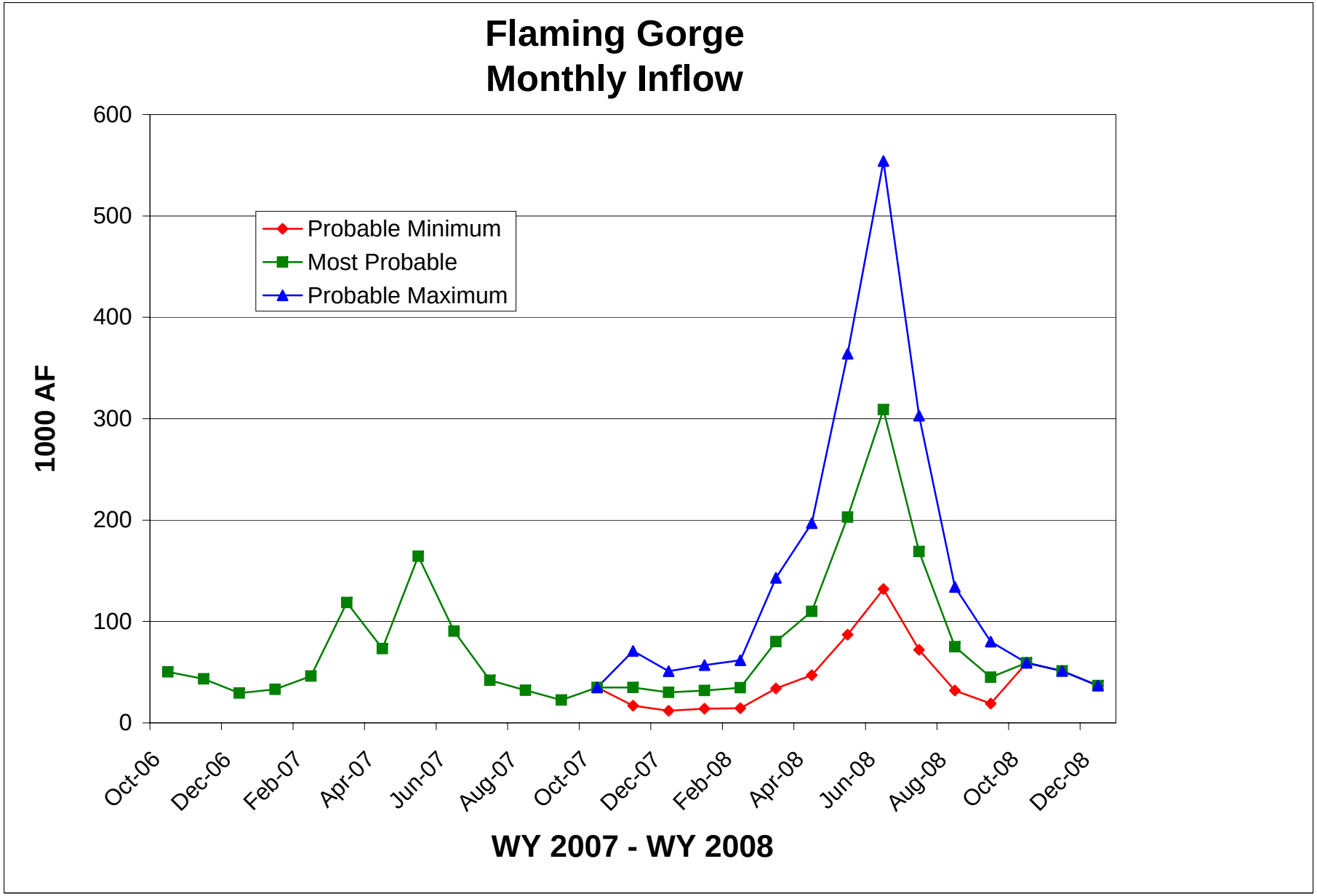
Oct-08
Dec-08
WY 2007 - WY 2008


Fontenelle
Monthly Storage
1000 AF
350
300
250
200
150
100
50
0
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008
Probable Minimum
Most Probable
Probable Maximum


Flaming Gorge
Monthly Inflow
1000 AF
600
500
400
300
200
100
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
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Aug-08
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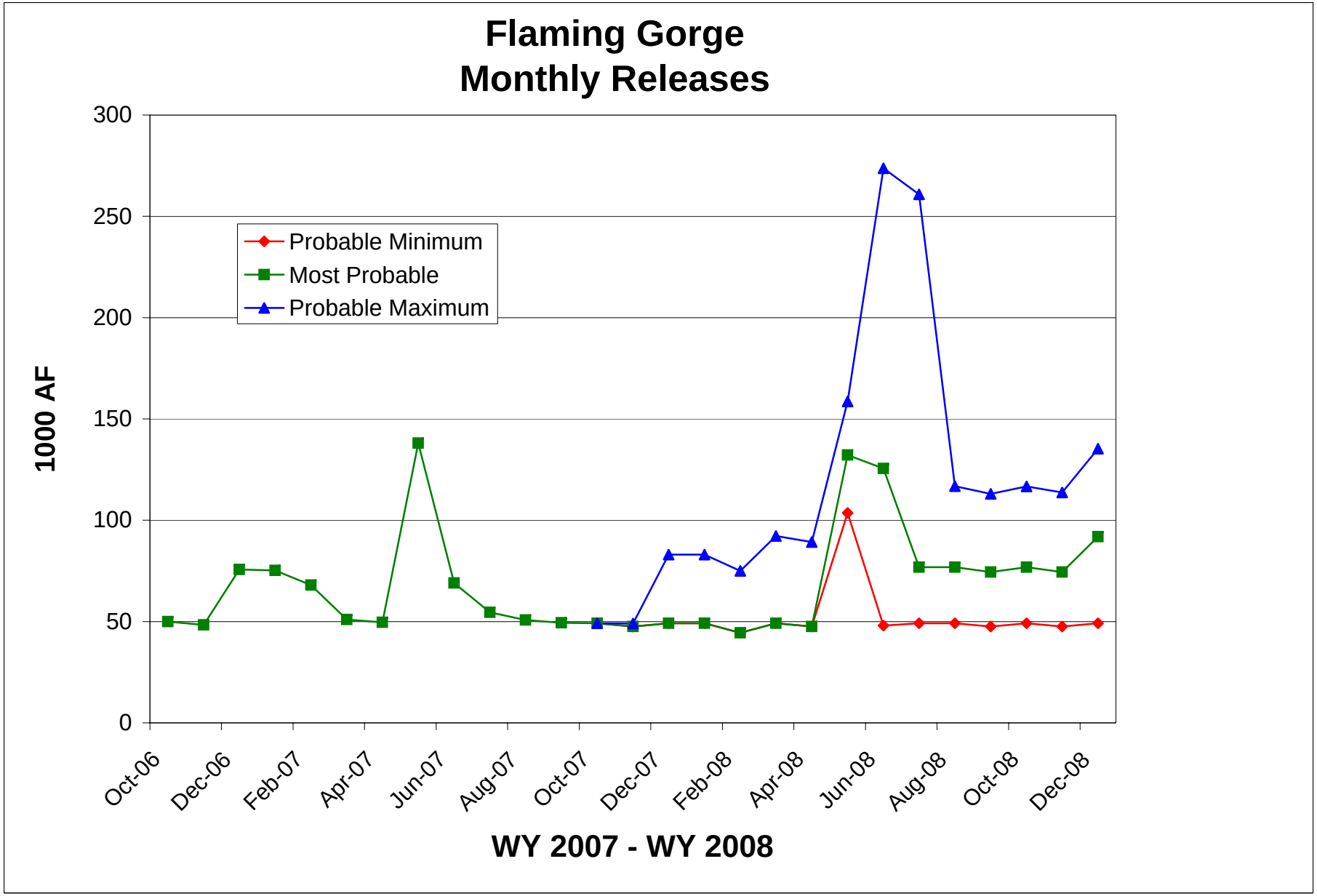
Dec-08
WY 2007 - WY 2008


Flaming Gorge
Monthly Releases
1000 AF
300
250
200
150
100
50
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
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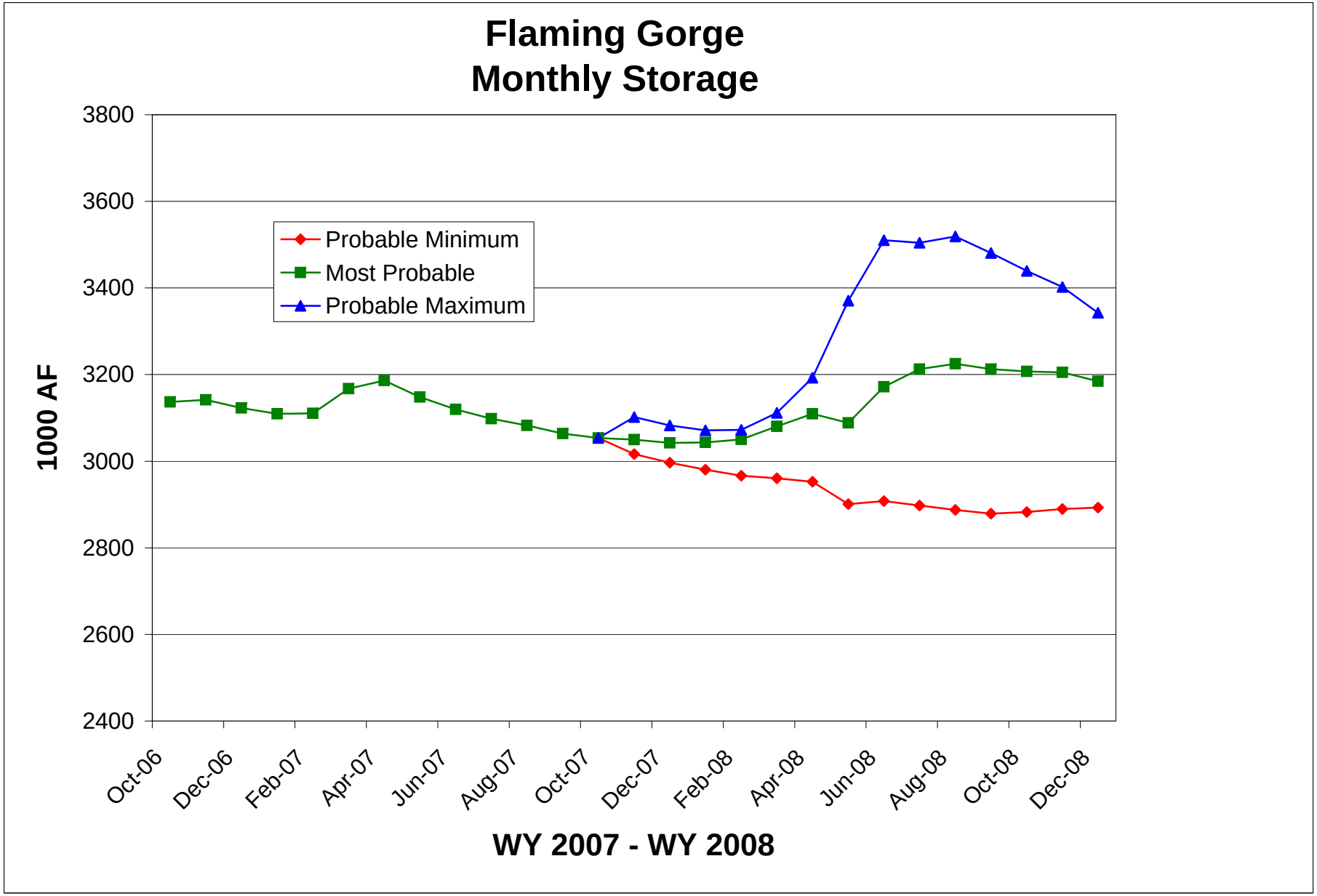
Oct-08
Dec-08
WY 2007 - WY 2008


Flaming Gorge
Monthly Storage
3800
3600
3400
3200
3000
2800
2600
2400
1000 AF
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
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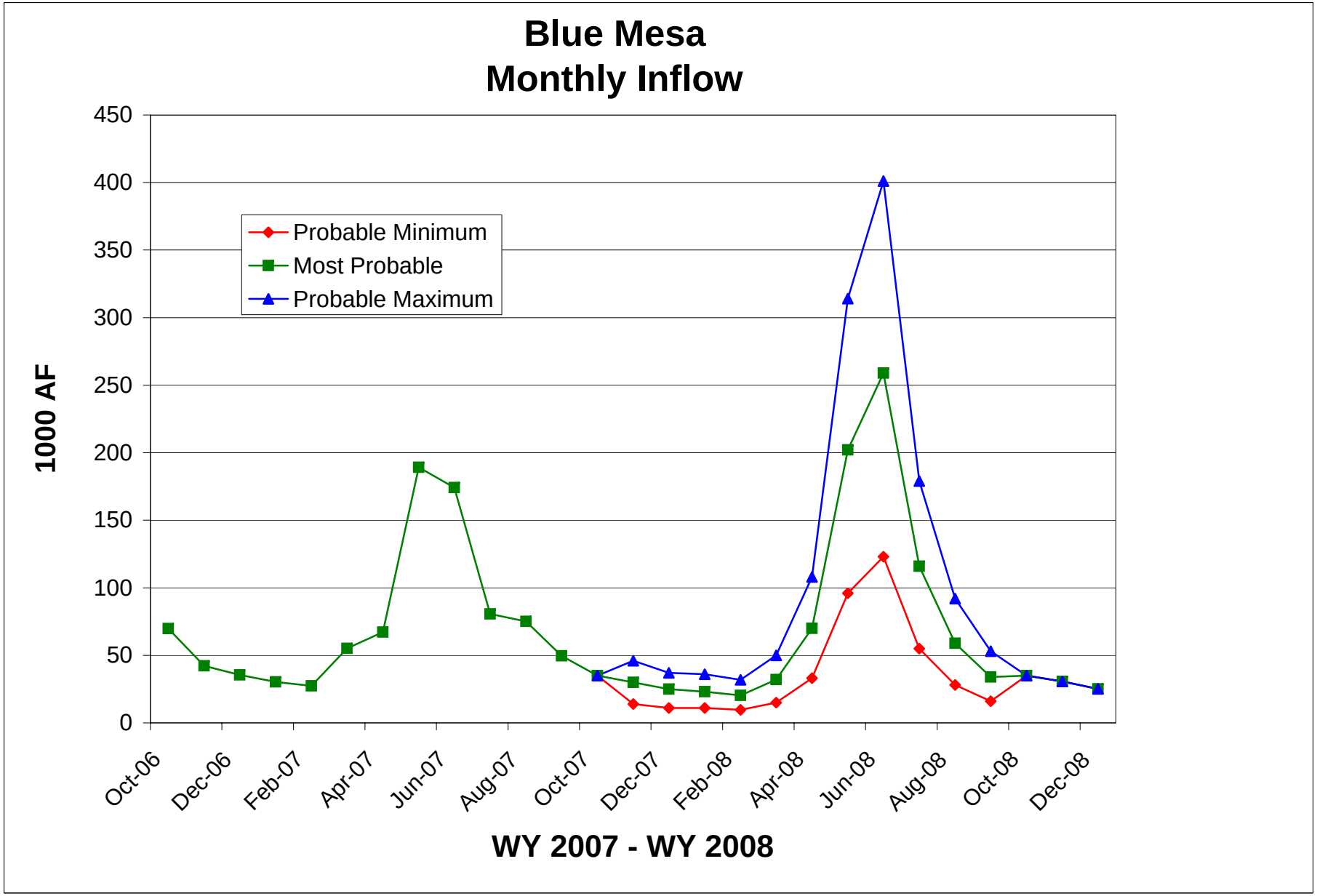
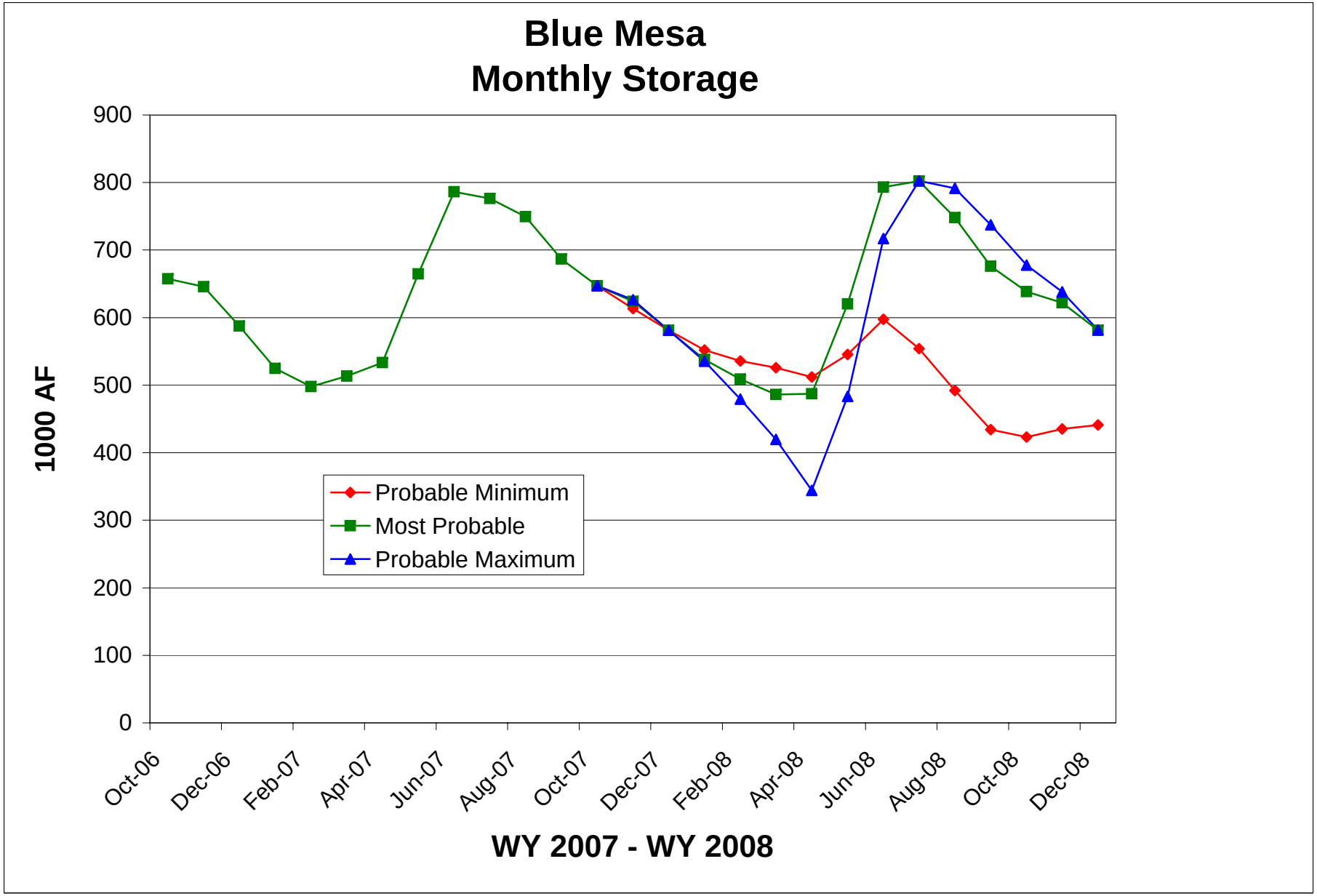
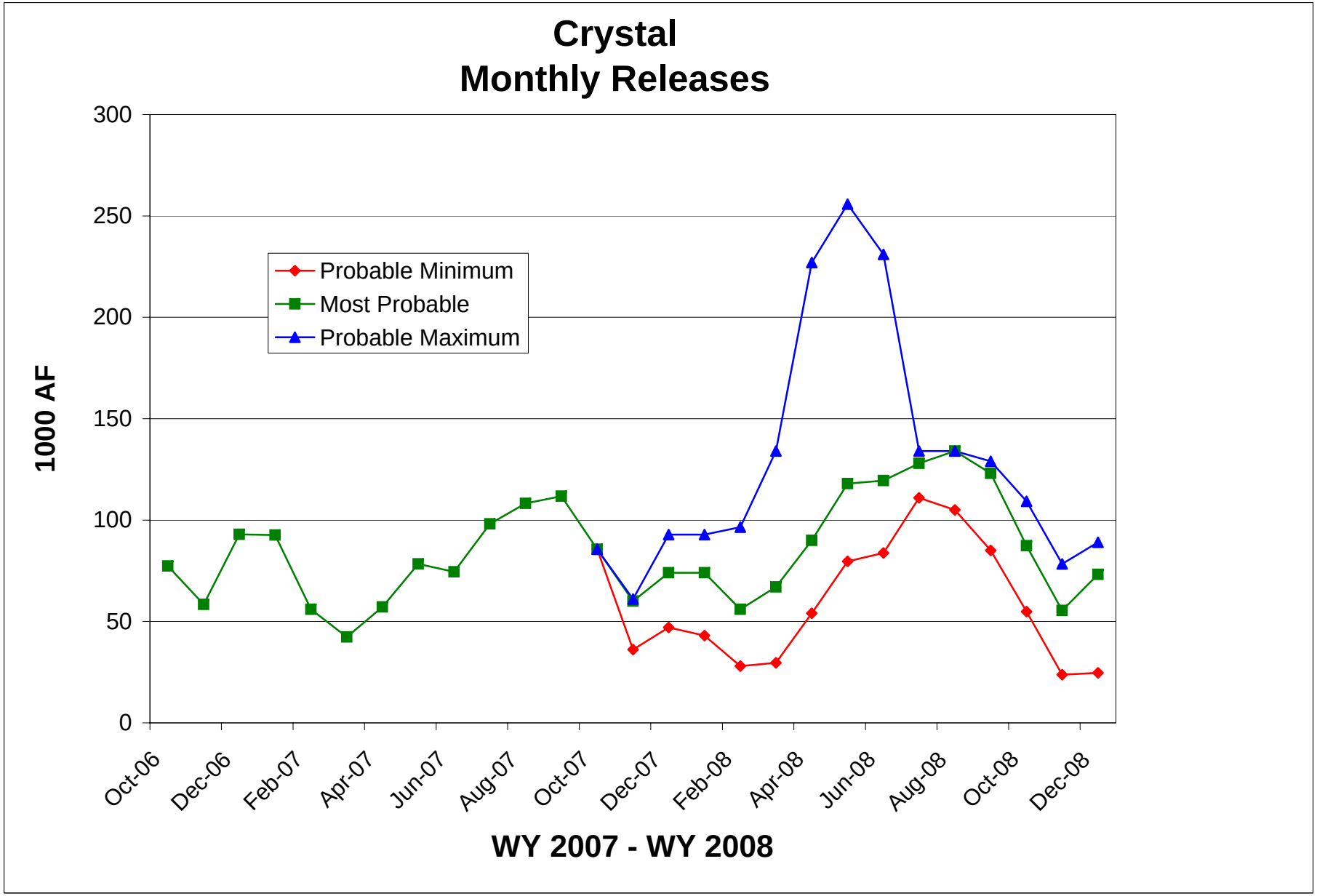
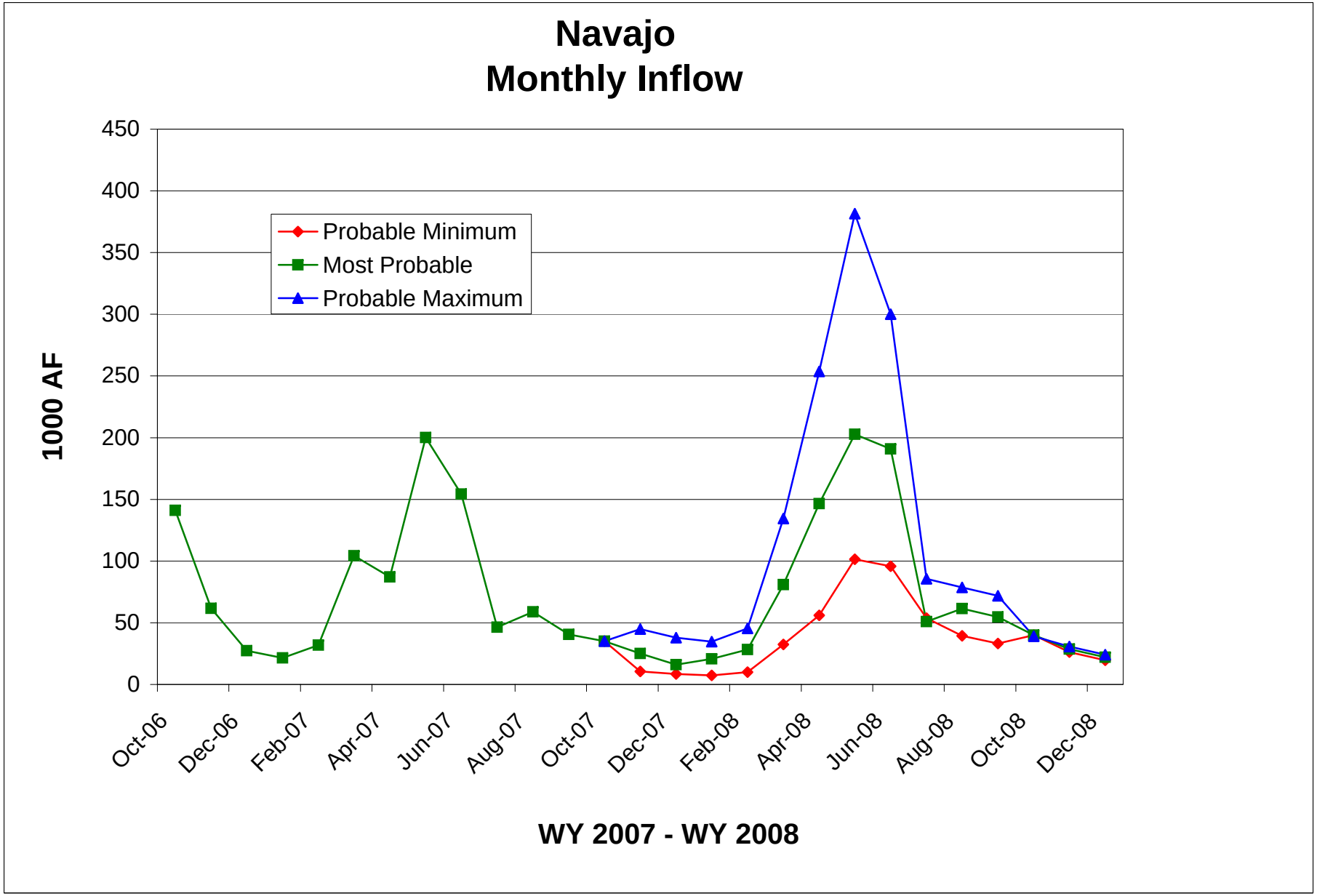
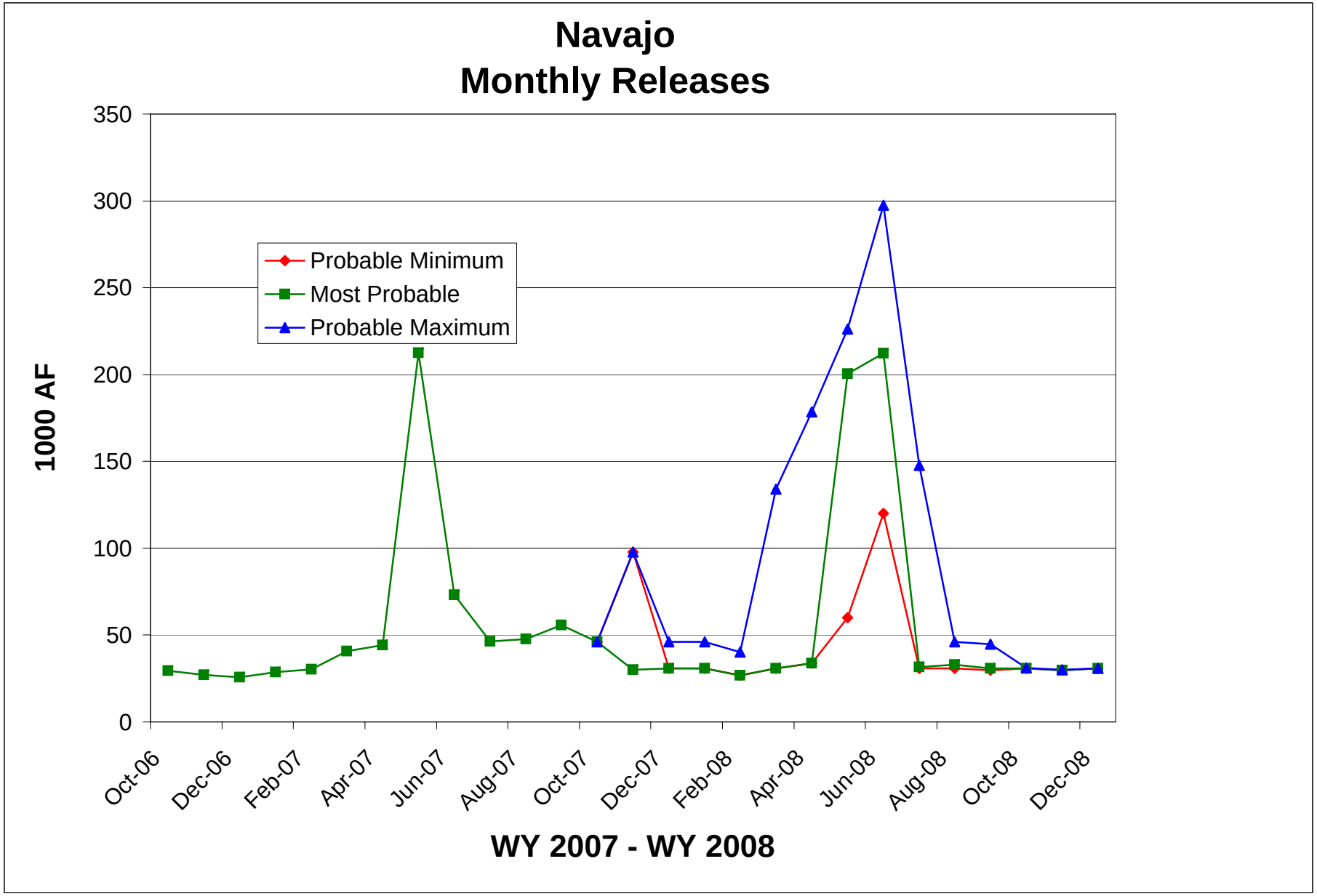
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

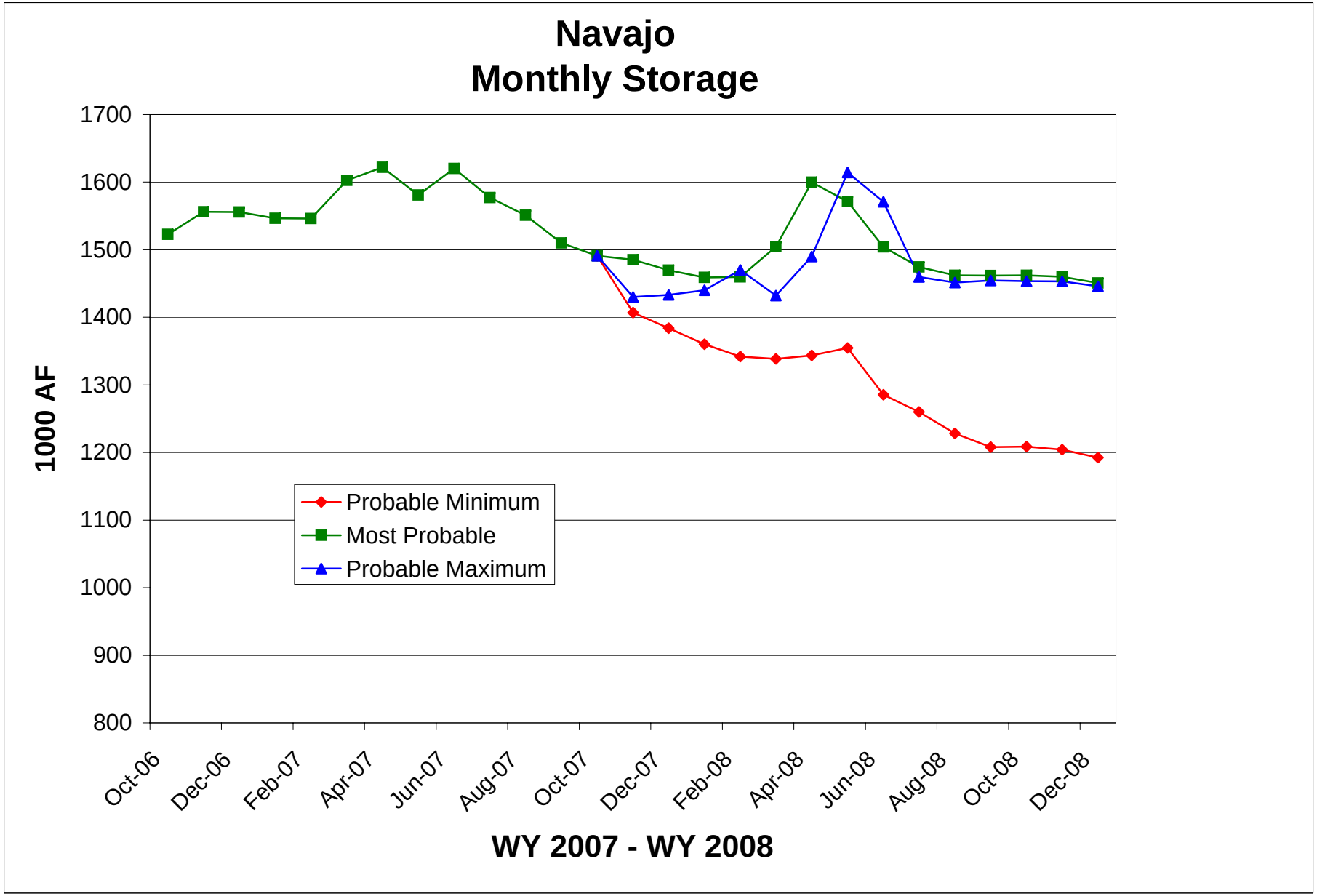

Blue Mesa
Monthly Inflow
1000 AF
450
400
350
300
250
200
150
100
50
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

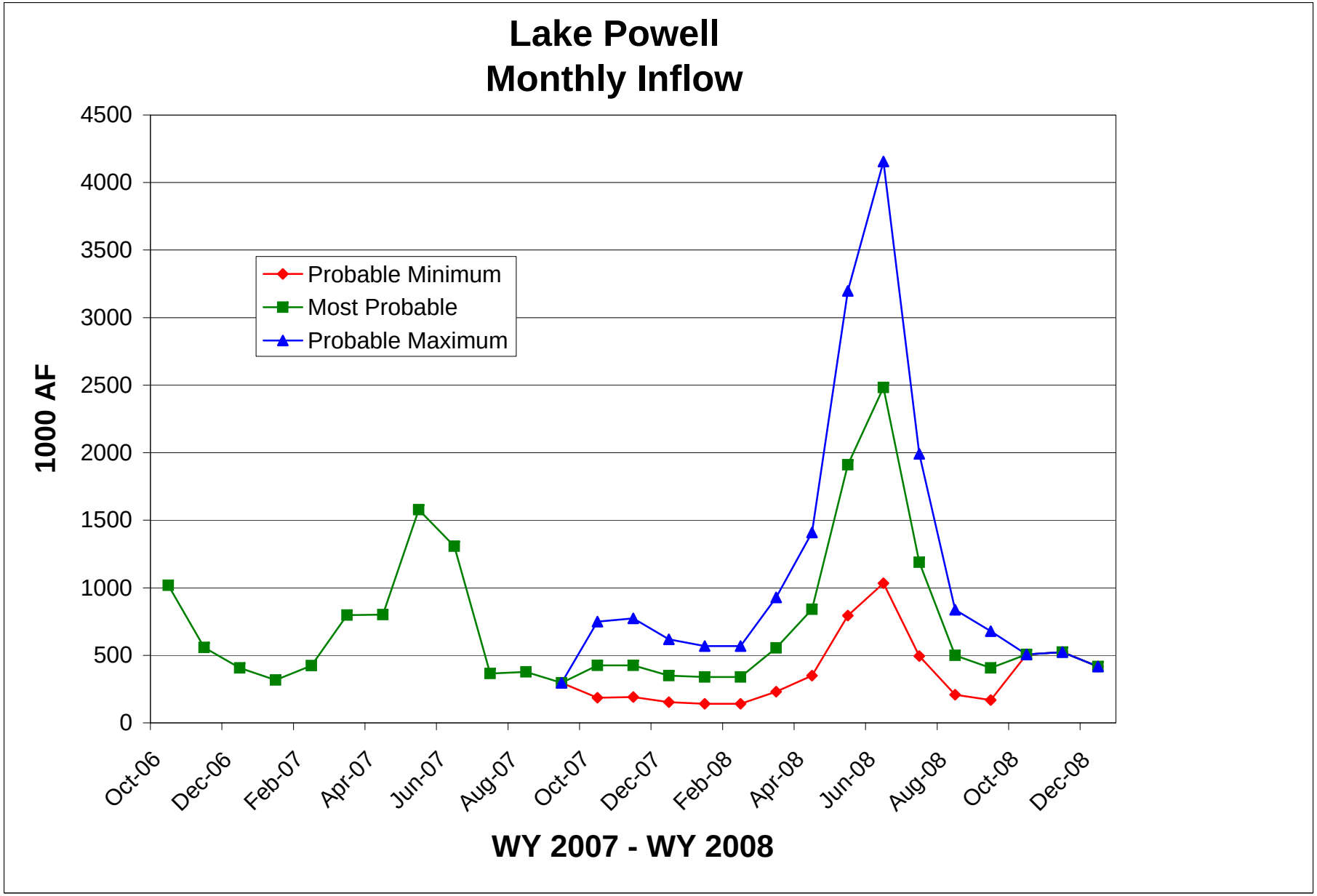

Blue Mesa
Monthly Storage
1000 AF
900
800
700
600
500
400
300
200
100
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

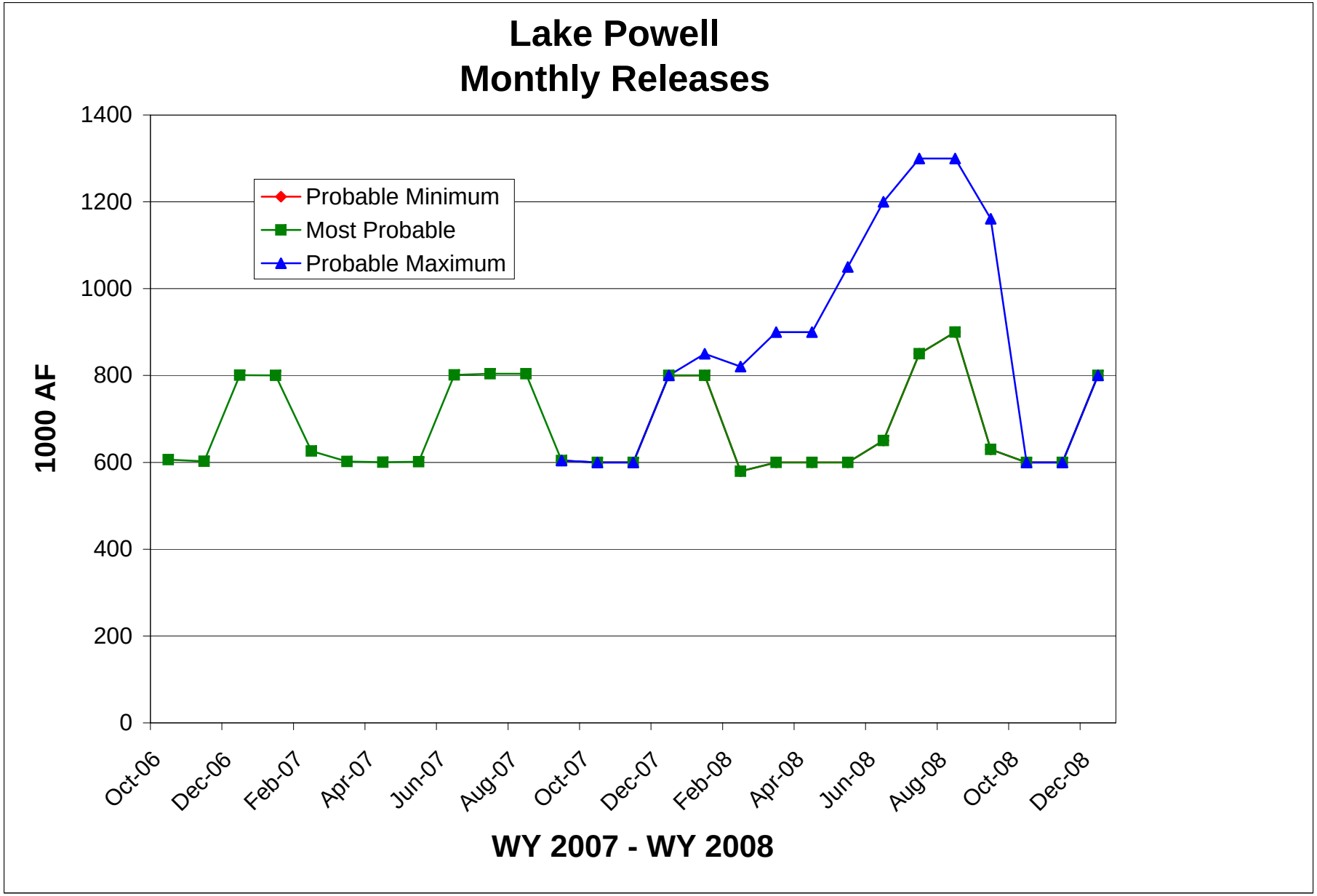

Crystal
Monthly Releases
1000 AF
300
250
200
150
100
50
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

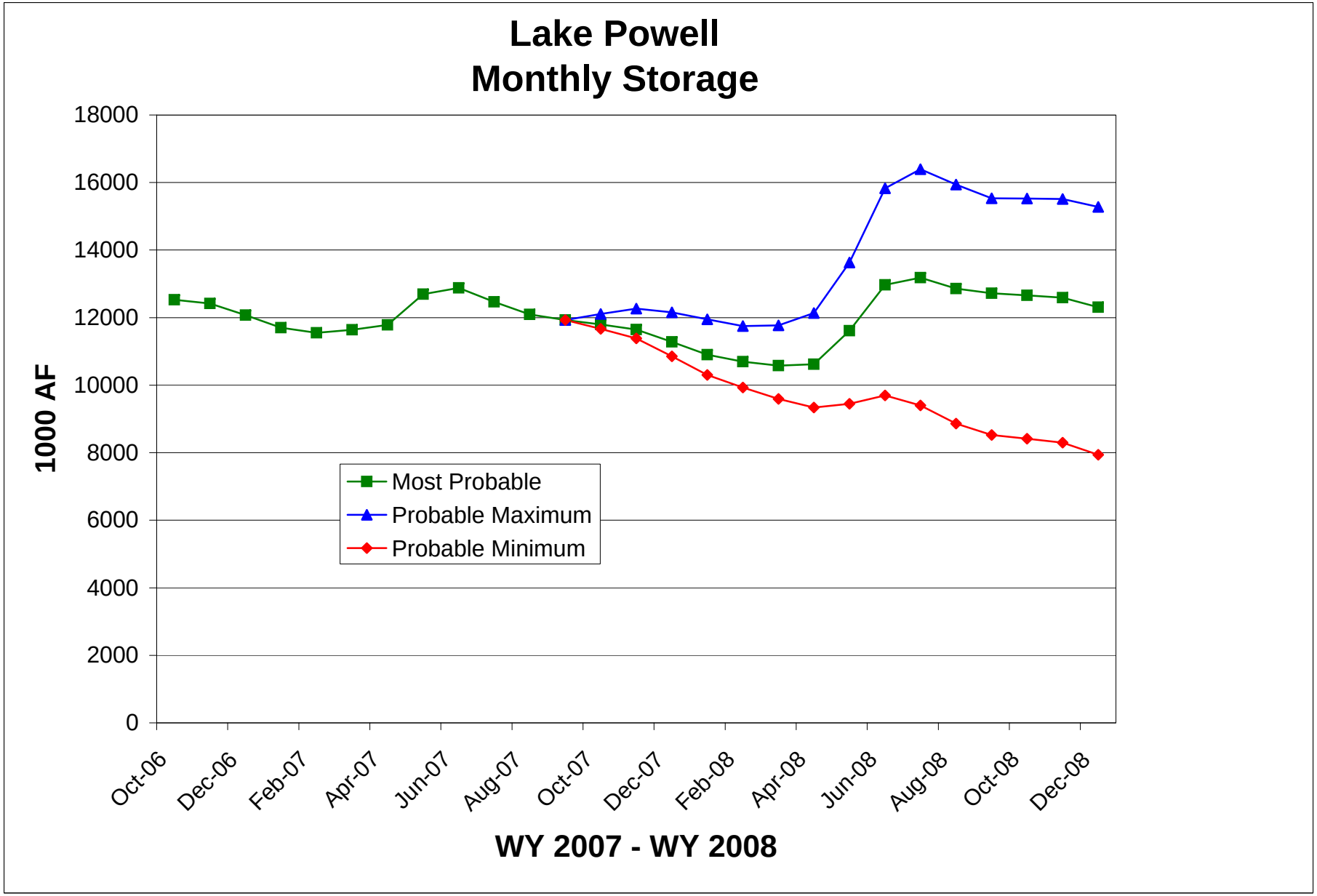

Navajo
Monthly Inflow
1000 AF
450
400
350
300
250
200
150
100
50
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

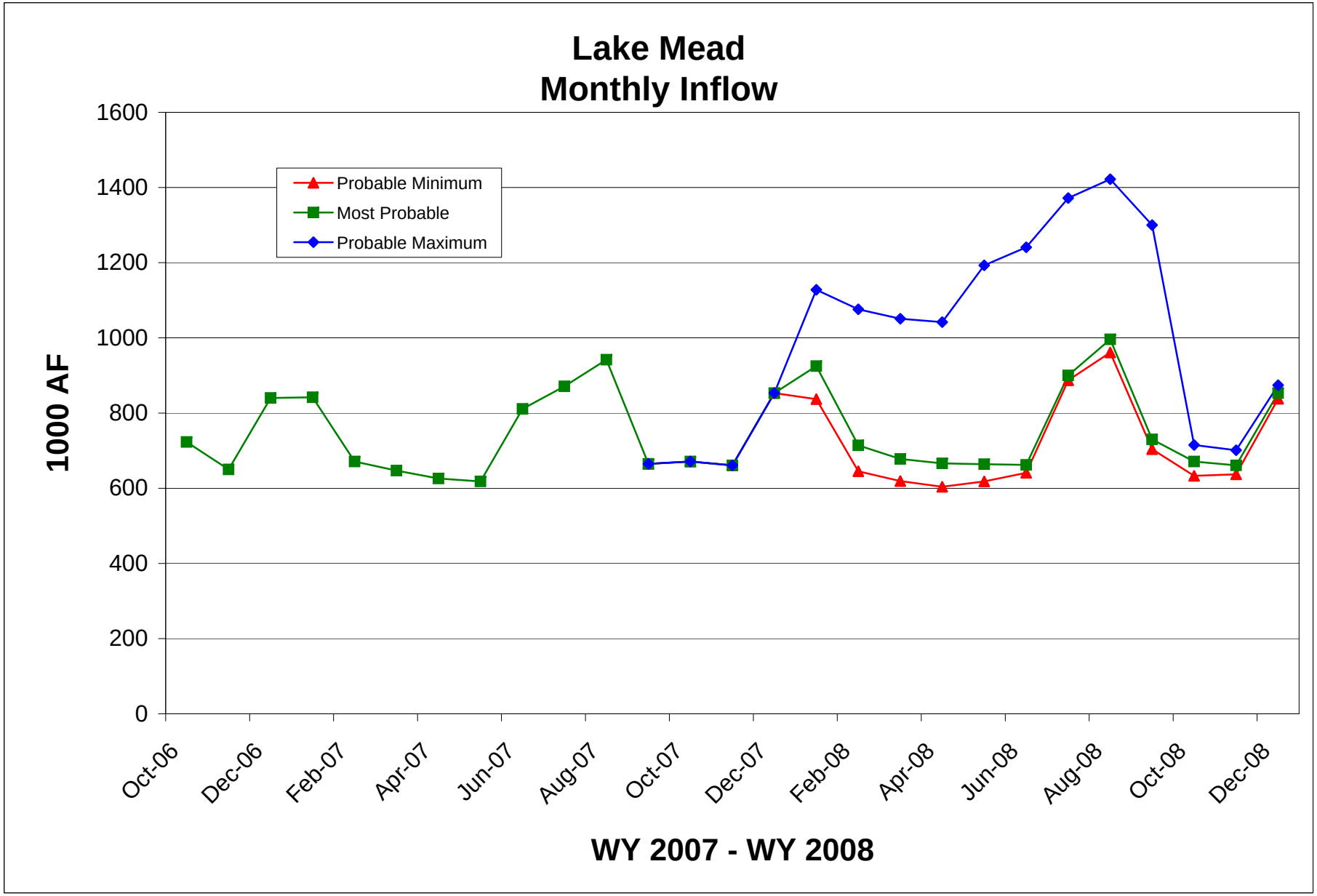

Navajo
Monthly Releases
1000 AF
350
300
250
200
150
100
50
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

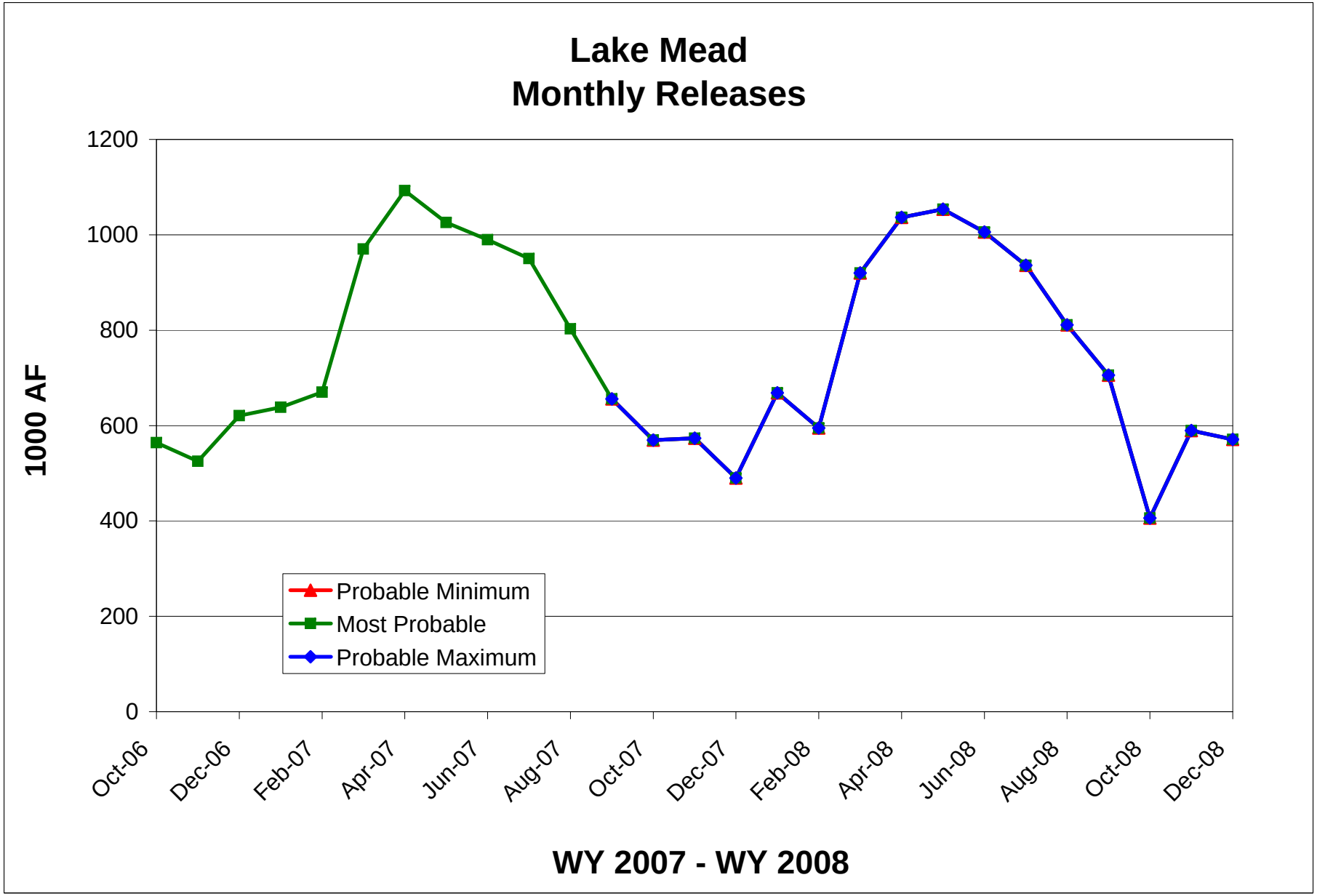

Navajo
Monthly Storage
1700
1600
1500
1400
1300
1200
1100
1000
900
800
1000 AF
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

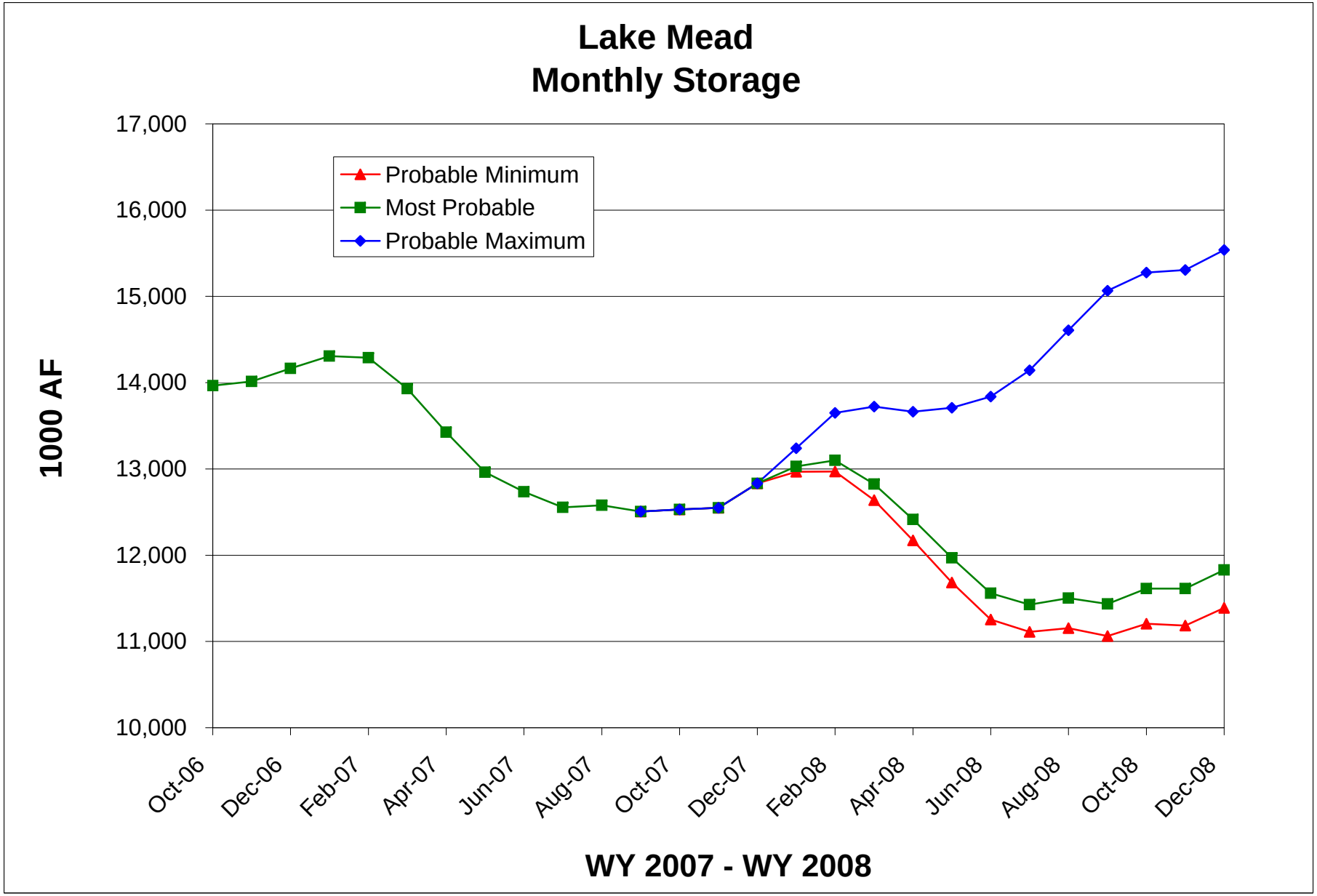

Lake Powell
Monthly Inflow
1000 AF
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

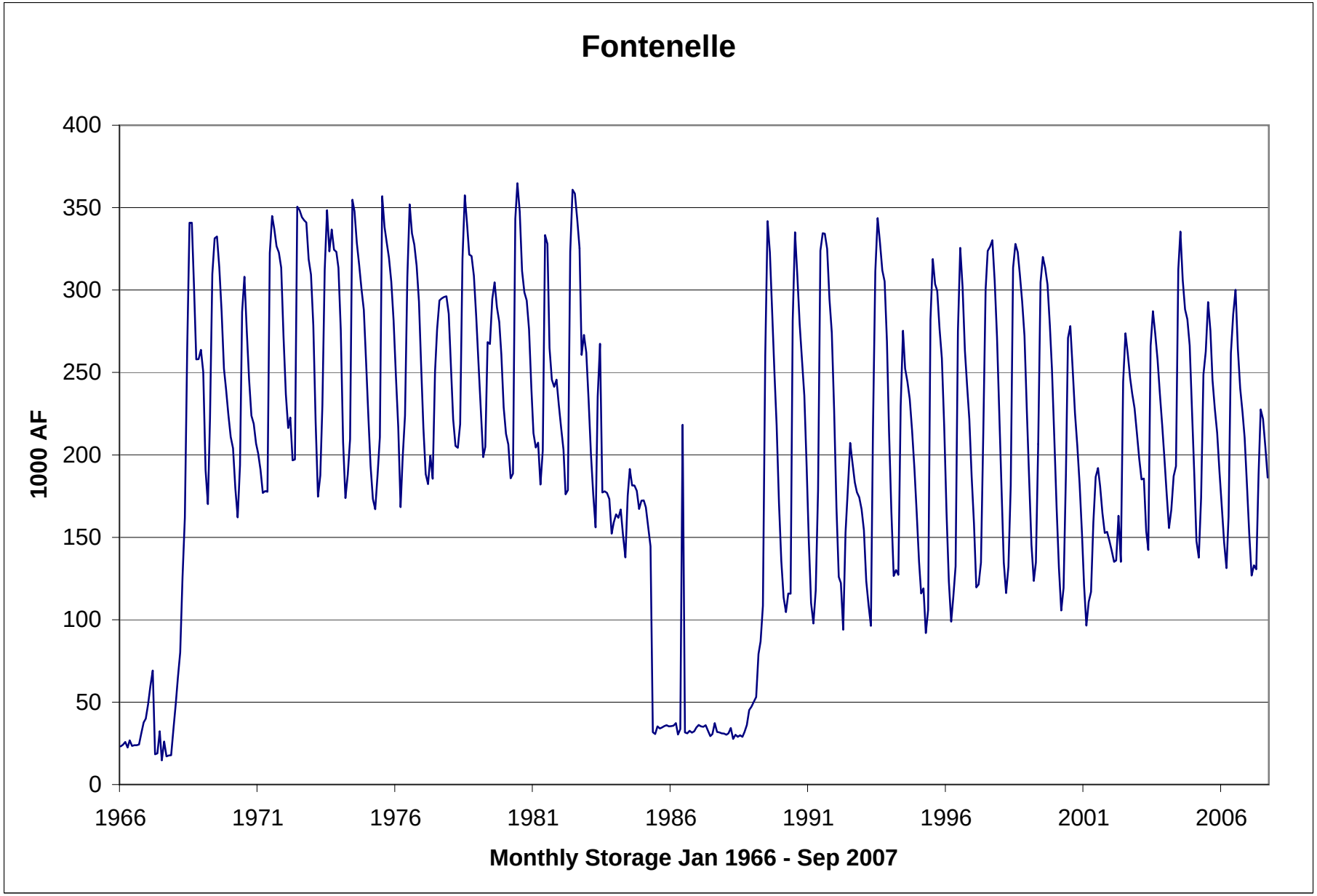

Lake Powell
Monthly Releases
1400
1200
1000
800
600
400
200
0
1000 AF
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

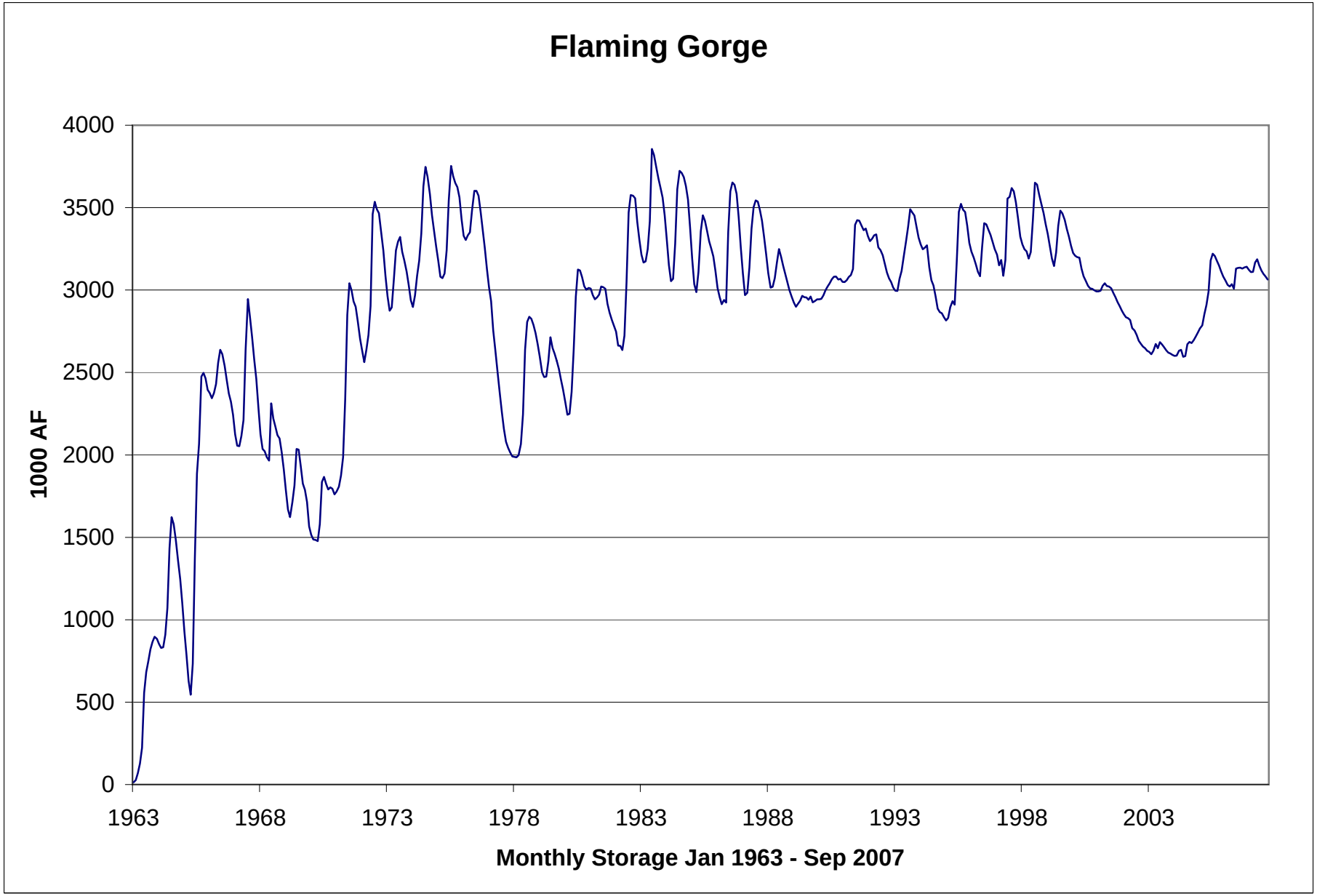

Lake Powell
Monthly Storage
1000 AF
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008
Most Probable
Probable Maximum
Probable Minimum

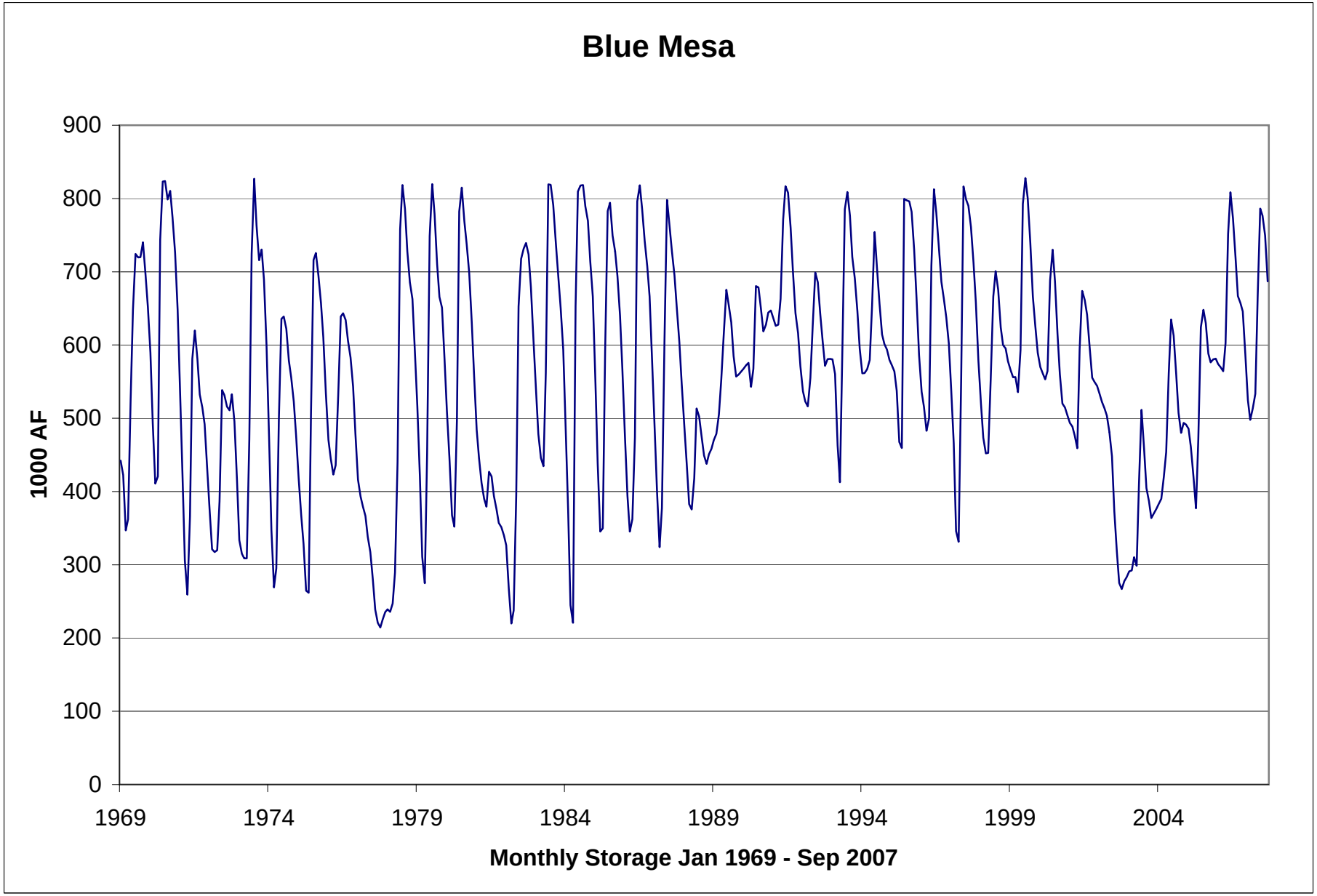

Lake Mead
Monthly Inflow
1000 AF
1600
1400
1200
1000
800
600
400
200
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

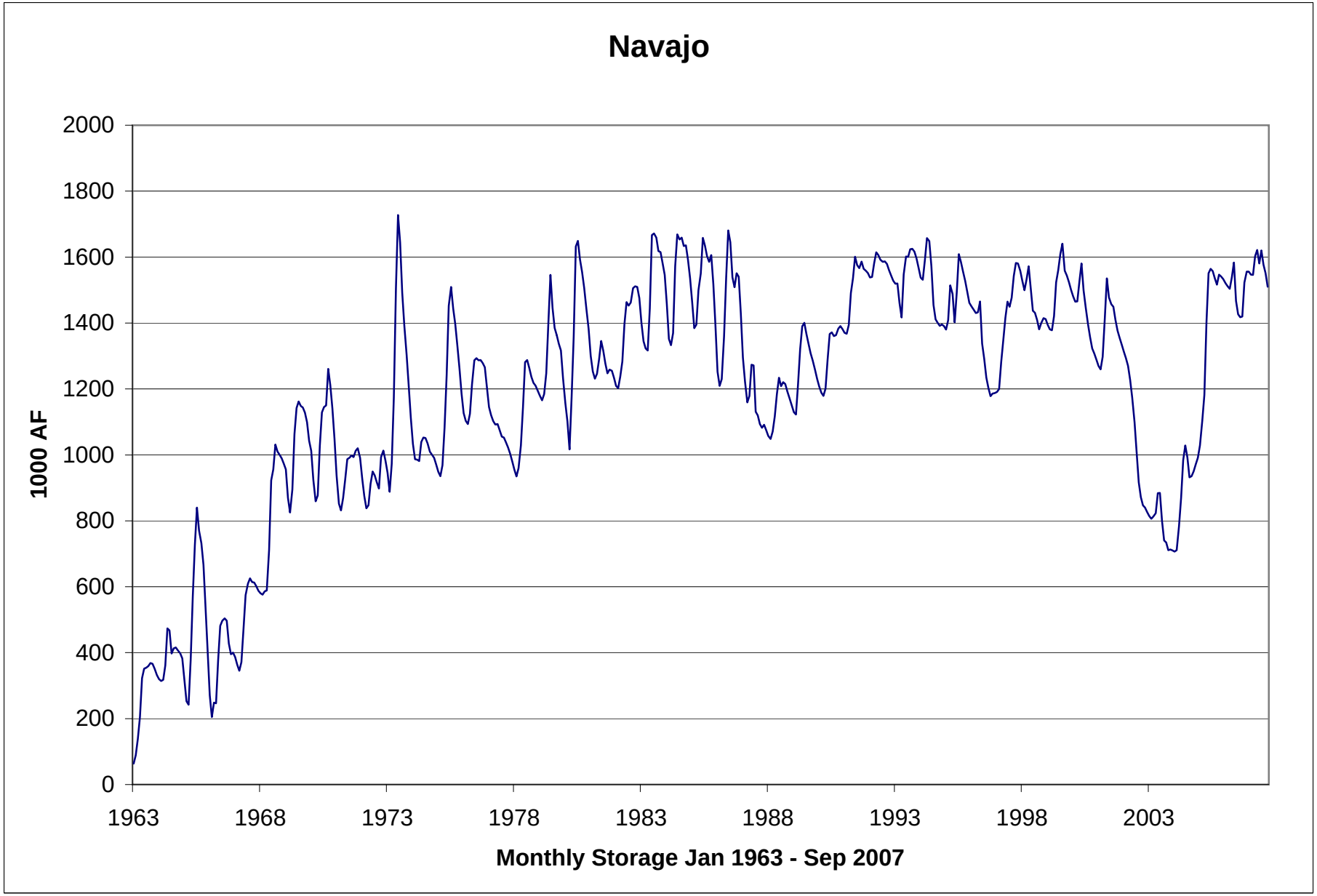

Lake Mead
Monthly Releases
1000 AF
1200
1000
800
600
400
200
0
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

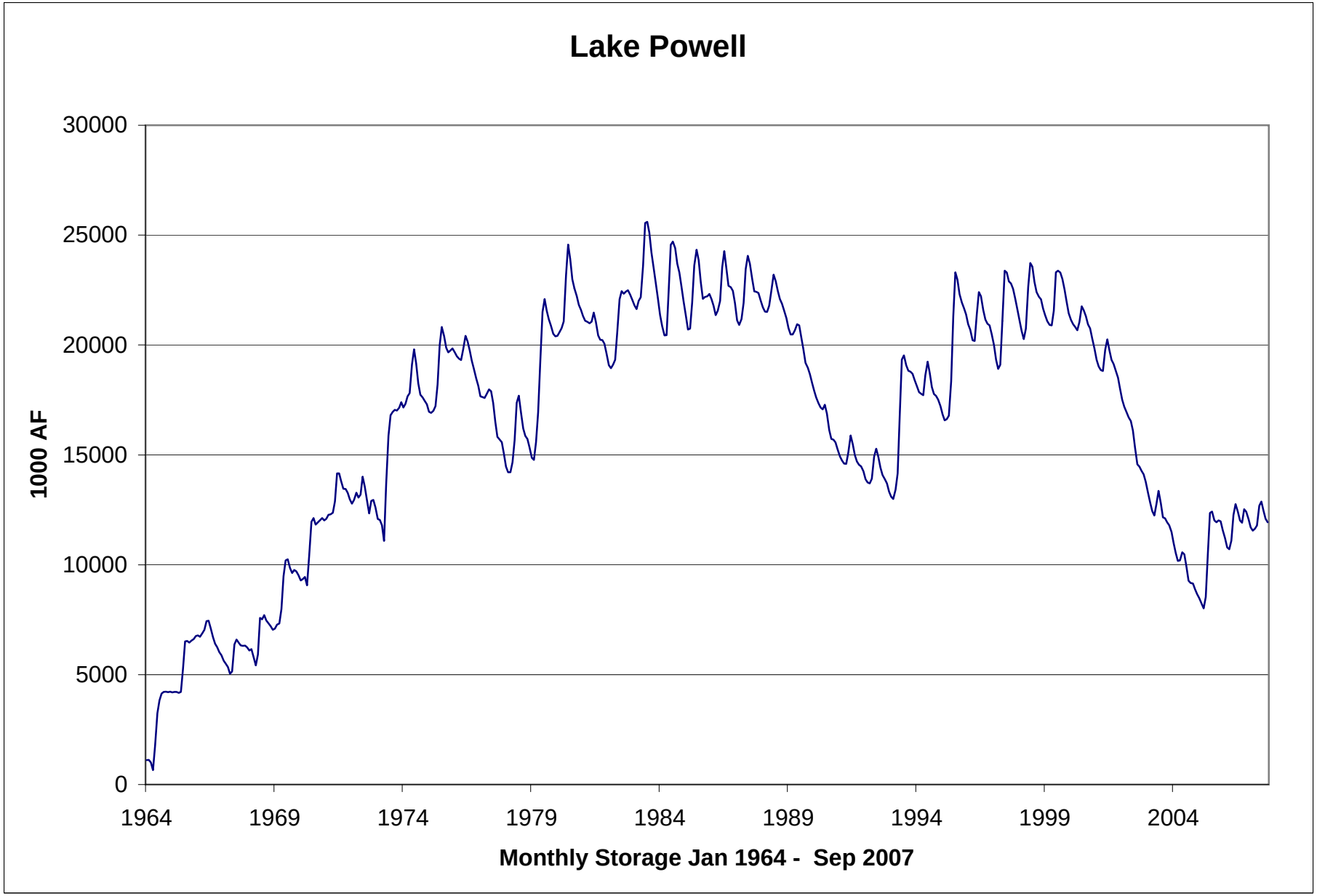

Lake Mead
Monthly Storage
17,000
16,000
15,000
14,000
13,000
12,000
11,000
10,000
1000 AF
Probable Minimum
Most Probable
Probable Maximum
Oct-06
Dec-06
Feb-07
Apr-07
Jun-07
Aug-07
Oct-07
Dec-07
Feb-08
Apr-08
Jun-08
Aug-08
Oct-08
Dec-08
WY 2007 - WY 2008

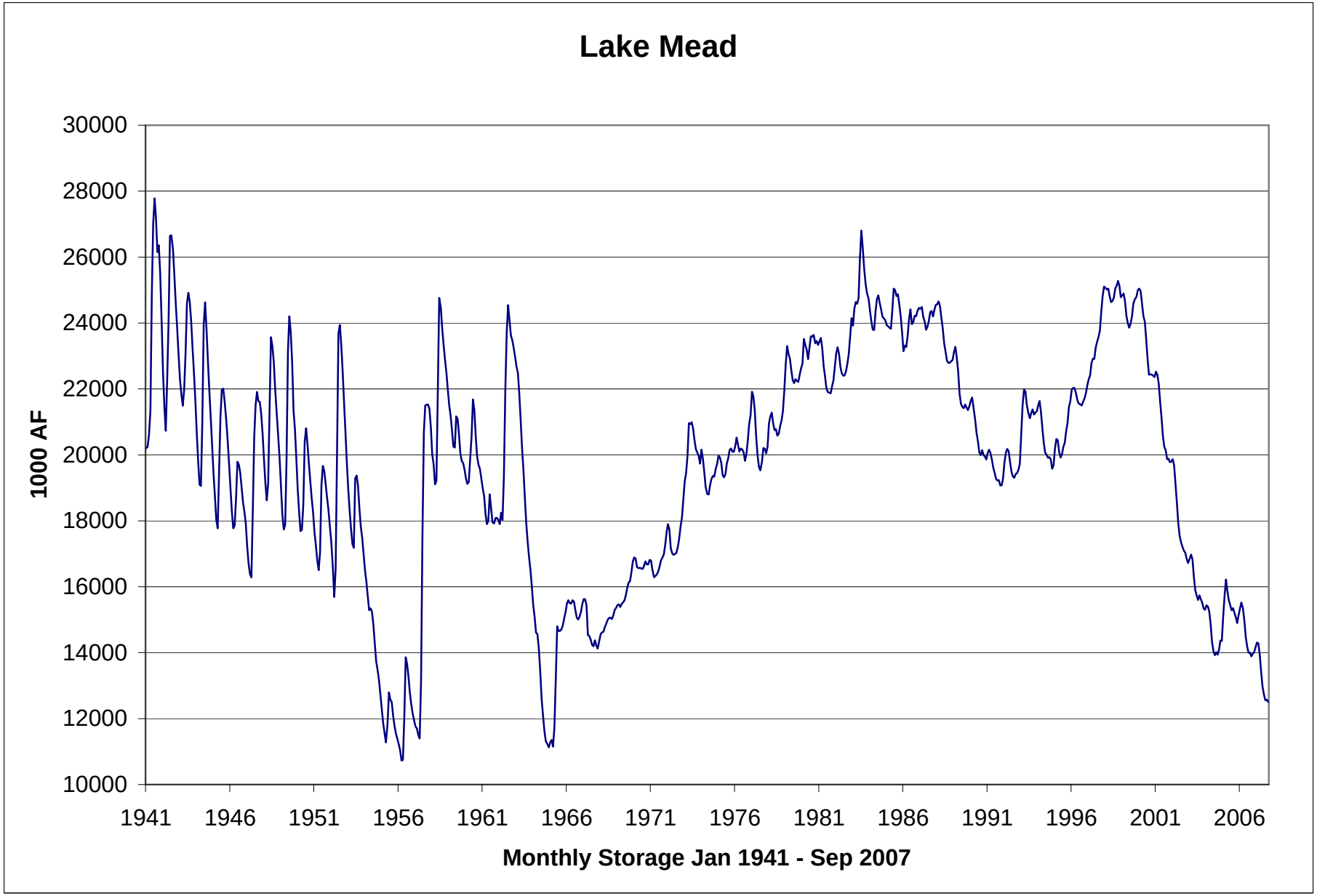

Fontenelle
400
350
300
250
200
150
100
50
0
1000 AF
1966
1971
1976
1981
1986
1991
1996
2001
2006
Monthly Storage Jan 1966 - Sep 2007


Flaming Gorge
4000
3500
3000
2500
2000
1500
1000
500
0
1000 AF
1963
1968
1973
1978
1983
1988
1993
1998
2003
Monthly Storage Jan 1963 - Sep 2007


Blue Mesa
900
800
700
600
500
400
300
200
100
0
1000 AF
1969
1974
1979
1984
1989
1994
1999
2004
Monthly Storage Jan 1969 - Sep 2007


Navajo
2000
1800
1600
1400
1200
1000
800
600
400
200
0
1000 AF
1963
1968
1973
1978
1983
1988
1993
1998
2003
Monthly Storage Jan 1963 - Sep 2007


Lake Powell
30000
25000
20000
15000
10000
5000
0
1000 AF
1964
1969
1974
1979
1984
1989
1994
1999
2004
Monthly Storage Jan 1964 - Sep 2007


Lake Mead
30000
28000
26000
24000
22000
20000
18000
16000
14000
12000
10000
1000 AF
1941
1946
1951
1956
1961
1966
1971
1976
1981
1986
1991
1996
2001
2006
Monthly Storage Jan 1941 - Sep 2007