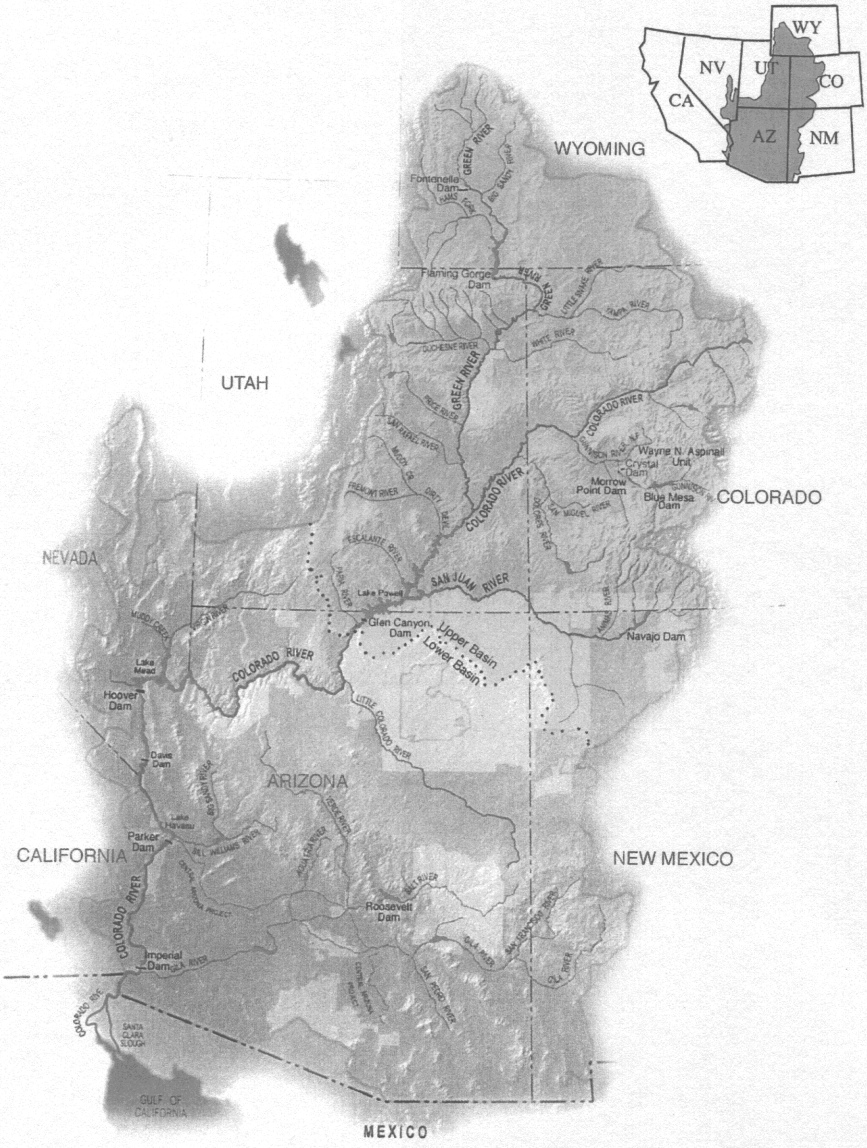
RECLAMATION

Managing Water in the West

Annual Operating Plan for Colorado River Reservoirs

2006



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INTRODUCTION

Authority

This 2006 Annual Operating Plan (AOP) was developed in accordance with Section 602 of the Colorado River Basin Project Act (Public Law 90-537) and the Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs Pursuant to the Colorado River Basin Project Act of September 30, 1968 (Operating Criteria), promulgated by the Secretary of the Interior (Secretary) pursuant thereto. 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, Colorado River Interim Surplus Guidelines (Interim Surplus Guidelines) (66 Federal Register 7772, January 25, 2001), Colorado River Water Delivery Agreement (69 Federal Register 12202, March 15, 2004), Interim 602(a) Storage Guideline (69 Federal Register 28945, May 19, 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 2006 AOP was prepared by the Bureau of 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).

Purpose

The purposes of the AOP are to determine: (1) the projected operation of the Colorado River reservoirs to satisfy project purposes under varying hydrologic and climatic conditions; (2) the quantity of water considered necessary to be in storage in the Upper Basin reservoirs as of September 30, 2006, 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 Minute No. 242 of the International Boundary and Water Commission, United States and Mexico (IBWC); (4) whether the reasonable consumptive use requirements of mainstream users in the Lower Division States will be met under a "Normal," "Surplus," or "Shortage" condition as outlined in Article III of the Operating Criteria and as implemented by the Interim Surplus 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 1964 U.S. Supreme Court Decree in Arizona v. California (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. The objective minimum release criterion will most likely control the annual release from Glen Canyon Dam during water year 2006 in accordance with Article II(2) of the Operating Criteria unless spill avoidance and/or the storage equalization criteria in Article II(3) is controlling. To maintain, as nearly as practicable, active storage in Lake Mead equal to the active storage in Lake Powell, releases from Lake Powell greater than the minimum objective of 8.23 million acre-feet (maf), 10,150 million cubic meters (mcm) will be made if (1) storage in Lake Powell on September 30, 2006, is projected to be greater than 14.85 maf (water surface elevation 3,630 feet); and (2) active storage in Lake Powell is greater than active storage in Lake Mead, consistent with Article II (3) of the Operating Criteria and Section V of the Interim 602(a) Storage Guideline.

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) Sections 2(B)(1) and (7) of the Interim Surplus Guidelines, the Partial Domestic Surplus Condition is the criterion governing the operation of Lake Mead for calendar year 2006 in accordance with Article III(3)(b) of the Operating Criteria and Article II(B)(2) of the Decree.

Reclamation does not anticipate any available unused state apportionment for calendar year 2006 at this time. However, if any unused apportionment is available, the Secretary shall allocate any available unused apportionments for calendar year 2006 in accordance with Article II(B)(6) of the Decree and Section 1(B) of the Interim Surplus Guidelines.

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 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.

[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).

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

The Colorado River Water Delivery Agreement requires payback of overruns 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 in calendar year 2006.

1944 United States-Mexico Water Treaty Delivery. A volume of 1.5 maf (1,850 mcm) of water will be available to be scheduled for delivery to Mexico during calendar year 2006 in accordance with Article 15 of the 1944 United States-Mexico Water Treaty and Minutes No. 242 and 310 of the IBWC.

2005 HYDROLOGY SUMMARY AND RESERVOIR STATUS

The Colorado River Basin experienced five consecutive years of extreme drought during water years 2000 through 2004. Unregulated[2] inflow into Lake Powell during this 5-year period was only 62, 59, 25, 51, and 49 percent of average, respectively. These years of low inflow resulted in significant drawdown of Colorado River reservoirs. As water year 2005 began (on October 1, 2004) reservoir storage in Lake Powell and Lake Mead had been reduced to 38 and 54 percent of capacity, respectively.

Improved hydrologic conditions were observed in water year 2005. Numerous precipitation events in the fall of 2004 helped reduce soil moisture deficits caused by the drought. The system responded to these fall precipitation events with increased flows. November 2004 was the first month with above average inflow to Lake Powell since September of 1999. Snowpack in the Upper Colorado River Basin ranged from average to moderately above average throughout the winter of 2004-2005. Snowpack above Lake Powell on April 1, 2005 was 118 percent of average. Unregulated inflow into Lake Powell during the April through July runoff period in 2005 was 8.81 maf (10,900 mcm), or 111 percent of the 30 year average[3]. Peak inflow to Lake Powell was 76,900 cfs (2,180 cms) and occurred on May 29, 2005. Peak inflow to Lake Powell had not reached this level since 1997. Reservoir storage in Lake Powell increased by 2.77 maf (3,420 mcm) during water year 2005. Storage in reservoirs upstream of Lake Powell has increased by approximately 1.12 maf (1,380 mcm) in water year 2005.

Tributary flows in the Lower Colorado River Basin were exceptionally high during the first half of water year 2005 due to Pacific storm events bringing above average precipitation into the southwestern region of the United States. Lower Basin tributary flows, both measured and unmeasured, were approximately 2.98 maf (3,676 mcm), 224% of the long-term average (1906-1995). The precipitation from these storms triggered flood control releases from the Corps of Engineers' (Corps) dams in Arizona, as well as reducing the demands in the Lower Basin. Flood control releases from Alamo and Painted Rock Dams were coordinated with Reclamation for inclusion in scheduling releases from Hoover, Davis, and Parker Dams. Because of these tributary flows and reduced demands, Lake Mead storage increased by 1.28 maf (1,579 mcm) during water year 2005.

Inflows into Lake Mead include the measured tributary flows of the Little Colorado River and the Virgin River and unmeasured tributary flows. For water year 2005, the Little Colorado River flows were 147% of the long term average and the Virgin River flows were 293% of the long term average. Unmeasured flows into Lake Mead for the water year were 230% of the long term average. The total tributary inflows into Lake Mead were 1.84 maf (2,269 mcm), 225% of average.

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[2] 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.

[3] Inflow statistics throughout this document will be compared to the 30-year average, 1971–2000, unless otherwise noted.

For water year 2005, total inflow from the Bill Williams River into the mainstem was 0.557 maf (686 mcm), 510% of the long term average and the total inflow from the Gila River into the mainstem was 0.264 maf (326 mcm)[4].

At the beginning of water year 2005, Colorado River total system storage was 50 percent of capacity. As of September 30, 2005, total system storage was 59 percent of capacity, an increase of approximately 5.10 maf (6,290 mcm). When compared to total system storage on September 30, 2003 (34.1 maf [42,062 mcm]) the gain in storage in water year 2005 offset the decrease in storage in water year 2004. While drought conditions in the Colorado River Basin eased in 2005, reservoir storage, particularly in Lake Powell and Lake Mead, remains relatively low.

Tables 1 and 2 list the October 1, 2005, reservoir vacant space, live storage, water elevation, percent of capacity, change in storage, and change in water elevation during water year 2005.

[4] Gila River flows are very sporadic. These flows occur very seldom and when they do they are typically of high magnitude.

Table 1. Reservoir Conditions on October 1, 2005 (English Units)

Reservoir	Vacant Space	Live Storage	Water Elevation	Percent of Capacity	Change in Storage*	Change in Elevation*
	(maf)	(maf)	(ft)	(%)	(maf)	(ft)
Fontenelle	0.100	0.245	6,492.6	71	-0.043	-6.0
Flaming Gorge	0.572	3.177	6,025.5	85	0.498	14.3
Blue Mesa	0.241	0.588	7,490.9	71	0.081	10.7
Navajo	0.179	1.516	6,072.6	89	0.581	50.1
Lake Powell	12.38	11.94	3,602.0	49	2.770	31.2
Lake Mead	10.66	15.22	1,138.4	59	1.282	12.5
Lake Mohave	0.237	1.573	638.3	87	-0.032	-1.2
Lake Havasu	0.065	0.554	446.6	89	-0.035	-1.8
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Totals	24.435	34.811		59	5.102	

* From October 1, 2004 to September 30, 2005.

Table 2. Reservoir Conditions on October 1, 2005 (Metric Units)

Reservoir	Vacant Space	Live Storage	Water Elevation	Percent of Capacity	Change in Storage*	Change in Elevation*
	(mcm)	(mcm)	(m)	(%)	(mcm)	(m)
Fontenelle	123	302	1,979	71	-53	-1.8
Flaming Gorge	706	3,919	1,837	85	614	4.4
Blue Mesa	297	725	2,283	71	100	3.3
Navajo	221	1,870	1,851	89	717	15.3
Lake Powell	15,274	14,727	1,098	49	3,417	9.5
Lake Mead	13,147	18,773	347	59	1,581	3.8
Lake Mohave	292	1,940	195	87	-39	-0.4
Lake Havasu	81	683	136	89	-43	-0.6
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Totals	30,141	42,939		59	6,293	

2006 WATER SUPPLY ASSUMPTIONS

For 2006 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 most probable inflow scenario in 2006 using the Ensemble Streamflow Prediction (ESP) model. Most probable inflow for Lake Powell in water year 2006 is 11.18 maf (13,780 mcm) or 93 percent of average. The minimum inflow scenario (90 percent exceedance) and maximum inflow scenario (10 percent exceedance) were developed with a Pearson Type III statistical distribution using historical inflow data as input[5]. Minimum probable inflow to Lake Powell in water year 2006 is 5.41 maf (6,670 mcm) or 45 percent of average. Maximum probable inflow is 18.20 maf (22,440 mcm) or 151 percent of average. The three inflow scenarios for Lake Powell are shown in Tables 3 and 4.

The monthly volumes of inflow resulting from these assumptions were input into Reclamation's monthly reservoir simulation model, used to plan reservoir operations for the upcoming 24-month period. Starting with October 1, 2005, reservoir storage conditions, the monthly releases for each reservoir were adjusted until release and storage levels best accomplished project purposes.

Graphs of the projected 2006 inflows, releases, and storages for each hydrologic scenario are presented in the Attachment.

[5] Inflow data from the period 1976-2002 was used to develop the three inflow scenarios.

Table 3. Projected Unregulated Inflow into Lake Powell for Water Year 2006

(English Units: maf)

Time Period	Probable Maximum	Most Probable	Probable Minimum
10/05–12/05	1.25	1.25	1.25
1/06 – 3/06	1.96	1.45	0.84
4/06 – 7/06	13.56	7.40	2.62
8/06 – 9/06	1.43	1.08	0.70
10/06 – 12/06	1.39	1.39	1.39
WY 2006	18.20	11.18	5.41
CY 2006	18.34	11.32	5.55

Table 4. Projected Unregulated Inflow into Lake Powell for Water Year 2006

(Metric Units: mcm)

Time Period	Probable Maximum	Most Probable	Probable Minimum
10/05 –12/05	1,540	1,540	1,540
1/06 –3/06	2,410	1,790	1,040
4/06 –7/06	16,730	9,130	3,230
8/06 –9/06	1,760	1,330	861
10/06 –12/06	1,720	1,720	1,720
WY 2006	24,440	13,780	6,670
CY 2006	22,620	13,960	6,850

SUMMARY OF RESERVOIR OPERATIONS IN 2005 AND PROJECTED 2006 RESERVOIR OPERATIONS

The regulation of the Colorado River has had effects on downstream 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 downstream 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, Navajo Dam, and Glen Canyon Dam.[6] These work groups provide a public forum for information dissemination on ongoing and projected reservoir operations throughout the year. These work groups allow stakeholders the opportunity to provide information and feedback on ongoing reservoir operations.

Modifications to planned operations may be made based on changes in forecast conditions or other relevant factors. Due to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Upper Colorado Recovery Program), the San Juan River Basin Recovery Implementation Program (San Juan Recovery Program), Section 7 consultations under the Endangered Species Act (ESA), and other downstream concerns, modification to the 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 initiate meetings with the U.S. Fish and Wildlife Service (USFWS), representatives of the Basin States, and with public stakeholder work groups to facilitate the discussions necessary to finalize site-specific operations plans.

Reclamation completed ESA Section 7 consultation with the USFWS in April 1997 and again in April 2002 for on-going discretionary routine lower Colorado River operations and maintenance activities for a total period of up to eight years. On an annual basis, Reclamation's compliance with environmental commitments related to the 1997 and 2002 Biological Opinions is reported to the USFWS. Reclamation will continue to implement environmental commitments related to the Biological Opinion for "Interim Surplus Criteria, Secretarial Implementation Agreement, and Conservation Measures on the Lower Colorado River, Lake Mead to the Southerly International Boundary Arizona, California, and Nevada" dated January 12, 2001 (2001 Biological Opinion). In 1995, Reclamation and the USFWS 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. The final LCR MSCP environmental compliance documents (i.e., Habitat Conservation Plan (HCP), Biological Assessment, and Programmatic Environmental Impact

[6] At Glen Canyon Dam, the Adaptive Management Work Group (AMWG), a Federal Advisory Committee, was established in 1997. Additional information on the AMWG can be found at www.usbr.gov/uc/rm/amp.

Statement/Environmental Impact Report) were completed in December 2004. In April 2005, all remaining LCR MSCP implementation documents and agreements were executed by the Secretary and/or other federal and non-federal participating agencies, including the Record of Decision; the Implementing Agreement; the Funding and Management Agreement; the ESA Section 10 incidental take authorization permit; and the ESA Section 7 Biological Opinion; and the Section 2081 Permit (applicable only to the California Permittees). The implementation of the 2001 Biological Opinion conservation and mitigation measures shall be credited against the requirements of the LCR MSCP in accordance with the HCP.

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

Fontenelle Reservoir

Hydrologic conditions improved in water year 2005 in the Upper Green River Basin in comparison to the previous five consecutive years. The April through July inflow to Fontenelle Reservoir during water year 2005 was 0.843 maf (1,040 mcm), which was 98 percent of normal. Fontenelle Reservoir nearly filled in 2005 and bypass releases were necessary in order to accommodate the spring runoff. Inflow peaked at 8,350 cubic feet per second (cfs) or 236 cubic meters per second (cms) on June 26, 2005. Releases from Fontenelle Reservoir reached a maximum of 6,000 cfs (170 cms) between June 2, 2005, and June 15, 2005. These maximum releases were a combination of bypass releases and powerplant releases. The releases through the powerplant during this period were at powerplant capacity, approximately 1,500 cfs (40 cms). The peak elevation of Fontenelle Reservoir during water year 2005 was 6,499.5 feet (1,981.0 meters) which occurred on August 6, 2005. This elevation is 6.5 feet (2.0 meters) below the spillway crest elevation.

The most probable April through July inflow to Fontenelle Reservoir during water year 2006 is 0.844 maf (1,040 mcm). This volume far exceeds 0.345 maf (426 mcm), the storage capacity of Fontenelle Reservoir. For this reason, the most probable and maximum probable 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 2006. 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 the minimum pool elevation of 6,463 feet (1,970 meters) by early April 2006, which corresponds to a volume of 0.093 maf (115 mcm) of live storage.

Flaming Gorge Reservoir

Inflows to Flaming Gorge Reservoir during water year 2005 were near normal and well above the inflow volumes received during the preceding 5 years (2000 to 2004). The annual unregulated inflow volume for water year 2005 was 1.59 maf (1,960 mcm), which was 92 percent of normal. The annual unregulated inflow volumes during the drought period (water year 2000 through water year 2004) were 56, 43, 31, 44 and 51 percent of normal, respectively. Flaming Gorge Reservoir did not fill during water year 2005. On October 1, 2004, the beginning of water year 2005, the reservoir elevation was 6,011.2 feet above sea level (1,832 meters). The

reservoir elevation increased during water year 2005 and ended water year 2005 (on September 30, 2005) at an elevation of 6,025.5 feet (1,836.6 meters). The water year ending reservoir elevation was 14.5 feet (4.4 meters) below the full pool elevation of 6,040 feet (1,841 meters) which corresponds to an available storage space of 0.572 maf (706 mcm).

The Upper Colorado Recovery Program made a request to Reclamation to modify the releases from Flaming Gorge Dam during the spring to achieve three specific target flows in the Green River below the confluence with the Yampa River. For this test flow, the targets requested were 14,000 cfs (396 cms) for 2 days, 16,000 cfs (453 cms) for 2 days, and 18,000 cfs (510 cms) for 2 days. Reclamation agreed to attempt to meet these specific targets within the limited release capacity of the powerplant and two bypass tubes (total capacity of 8,600 cfs). On May 17, 2005 Reclamation increased releases to powerplant capacity of 4,600 cfs (130 cms). Bypass releases were initiated on May 18, 2005, and maintained through May 20, 2005, to achieve the flow request. From May 28, 2005, through June 1, 2005, bypass releases were again implemented and adjusted as the flow of the Yampa River changed, in order to achieve the flows requested by the Upper Colorado Recovery Program. The highest level of bypass release was 2,200 cfs (62 cms) which occurred on May 30, 2005. This bypass release combined with powerplant capacity releases of 4,600 cfs (130 cms) resulted in a total release of 6,800 cfs (193 cms) on May 30, 2005. The total volume of water bypassed during the test was 13,300 acre-feet (16.4 mcm).

The flow of the Green River measured at Jensen, Utah, reached 14,000 cfs (396 cms) on May 21, 2005, and remained near this level for 1 day. A flow of 18,000 cfs (510 cms) at Jensen was reached on May 23, 2005, with the flow at or above this flow level for 4 days. The 16,000 cfs (453 cms) was achieved and maintained for 3 days beginning on May 29, 2005. The highest flow recorded for the Green River at Jensen, Utah, was 19,700 cfs (558 cms) which occurred on May 26, 2005. Flows on the Yampa River provided the majority of this peak flow. Bypass releases from Flaming Gorge were not utilized from May 21, 2005, through May 27, 2005. Releases from Flaming Gorge during this period were powerplant capacity releases of 4,600 cfs (130 cms). These flows were considered a test release under the Final Biological Opinion on the Operation of Flaming Gorge, dated November 25, 1992 (1992 Biological Opinion). Reclamation, the USFWS, and Western Area Power Administration conducted informal consultations in setting up the parameters of the test release.

In September 2000, a final report titled "Flow and Temperature Recommendations for Endangered Fishes in the Green River Downstream of Flaming Gorge Dam" (Flaming Gorge Flow Recommendations) was published by the Upper Colorado Recovery Program. The report compiled and summarized research conducted on endangered fish in the Green River under the Upper Colorado Recovery Program and presented flow recommendations for three segments of the Green River. Reclamation is in the process of conducting a National Environmental Policy Act (NEPA) process to determine the best operational alternative for Flaming Gorge Dam to meet these flow recommendations, to the extent possible, while maintaining authorized project purposes. A draft EIS was released to the public in August 2004. The final EIS is expected to be completed in November 2005 and a Record of Decision (ROD) issued in December 2005.

During water year 2006, Flaming Gorge Dam will be operated in conformance with the 1992 Biological Opinion until such time that the ROD is adopted. High spring releases will likely

continue to occur each year, timed with the Yampa River's spring runoff peak flow, followed by low summer and autumn base flows. Under the most probable scenario, releases in the winter and early spring during 2006 will be relatively low (approximately 1,400 cfs [40 cms]).

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

Near-average to above-average snowpack conditions prevailed in the Gunnison Basin during water year 2005. The April through July unregulated runoff into Blue Mesa Reservoir in 2005 was 0.589 maf (727 mcm) or 82 percent of average. Water year 2005 unregulated inflow into Blue Mesa Reservoir was 0.812 maf (1,011 mcm) or 81 percent of average. Runoff conditions were improved considerably compared to the five preceding years of drought. The net effect of the 2005 runoff and the water conservation practices by water users in the basin resulted in water in storage in Blue Mesa Reservoir increasing during water year 2005 by 0.081 maf (100 mcm). Storage in Blue Mesa Reservoir on September 30, 2005, was 0.588 maf (725 mcm), or 71 percent of capacity.

Releases from Aspinall Unit reservoirs in 2005 were near normal levels. Releases from the Aspinall Unit were reduced on November 12, 2004, to provide for a flow of 350 cfs (9.9 cms) in the Gunnison River through the Black Canyon (below the Gunnison Tunnel). This flow was maintained until early January 2005 at which time flows in the Black Canyon were increased to 600 cfs (17 cms). Water year 2005 powerplant bypasses were approximately 0.082 maf (101 mcm) at Crystal Dam. These bypass releases occurred because the powerplant was shut down from mid-October 2003 through February 2005 for generator rewind and turbine repair.

On August 16, 1995, Memorandum of Agreement (MOA) No. 95-07-40-R1760 was signed by the Bureau of Reclamation, USFWS, and the Colorado Water Conservation Board. The purpose of the MOA was to provide water to the Redlands Fish Ladder and 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). 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 0.4 maf (493 mcm) by the end of the calendar year. In 2004 it was not necessary to operate under a shared shortage arrangement, because there was sufficient runoff. 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.

In July 2003, a final report titled, "Flow Recommendations to Benefit Endangered Fishes in 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) Grand Junction; 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 EIS on operations to assist with meeting the flow recommendations or a reasonable alternative to them while maintaining authorized project purposes. Public scoping meetings were held in February 2004. A draft EIS is likely to be released in 2006.

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 downstream of the Gunnison Tunnel. 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. Additionally, 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. However, the 2003 amended water right application is currently being challenged in United States District Court in Colorado. Because of this challenge, the Colorado Water Court for Water Division 4 stayed proceedings on the amended Federal claim for the 300 cfs flow pending the outcome of the case before the District Court. The State of Colorado and others challenged the Colorado Water Court stay in the Colorado Supreme Court and in November 2004, the Colorado Supreme Court upheld the water court's decision. No action has been pursued on the Colorado Water Conservation Board's filing for the peak flows (flows in excess of those required to fulfill the purposes of the Aspinall Unit) in the Colorado Water Court for Water Division 4, and no action is anticipated until the amended Federal claim is settled. In short, the reserved water right claim for the Black Canyon of the Gunnison National Park has not yet been quantified.

For water year 2006 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 meet the delivery requirements of the Uncompahgre Valley Project, to meet senior water rights downstream, to the extent possible maintain a year round minimum flow of 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 2006, 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 gold medal trout fishery in the Black Canyon and recreational interests consistent with project purposes. Releases during 2006 will be planned to minimize large fluctuations in the daily and monthly flows in the Gunnison River below the Gunnison Tunnel diversion.

Under the minimum probable inflow scenario, Blue Mesa Reservoir is not expected to fill in 2006. Under the most probable and maximum probable inflow scenarios, Blue Mesa Reservoir is expected to fill in 2006.

Navajo Reservoir

Inflow to Navajo Reservoir in 2005 exceeded the 30-year average, marking the first time since 1999 that inflows were above average. The April through July unregulated inflow into Navajo Reservoir in water year 2005 was 1.184 maf (1,460 mcm), or 151 percent of average. Water year 2005 unregulated inflow was 1.58 maf (1,950 mcm) or 142 percent of average. This followed five consecutive years of below average inflow. Unregulated inflow to Navajo Reservoir in water years 2000, 2001, 2002, 2003, and 2004 was 42, 93, 11, 44, and 72 percent of average, respectively. Storage in Navajo Reservoir was significantly reduced due to these protracted drought conditions. The above average inflow in 2005 resulted in Navajo Reservoir nearly filling in 2005. The reservoir reached a peak water surface elevation of 6,076.8 feet on July 8, 2005, 8.2 feet (2.5 meters) from full pool. The water surface elevation at Navajo Reservoir on September 30, 2005, was 6,072.6 feet (1,850.9 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. The report synthesizes research conducted on endangered fish in the San Juan River over a 7-year 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 may be revised in the future to reflect knowledge gained over the last several years of operation.

Reclamation is proceeding through 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 filed on October 1, 1999, in the Federal Register. A draft EIS was released on September 4, 2002. The USFWS in June 2004 issued a non-jeopardy draft biological opinion for the operations of Navajo Dam to meet the San Juan Flow Recommendations, or a reasonable alternative. A final biological opinion is expected in 2005. The completion of the final EIS could occur within four months after receiving the final biological opinion, with the ROD to follow a minimum of 30 days later.

The San Juan Flow Recommendations called for making the maximum spring peak release from Navajo Reservoir in 2005. The spring release pattern implemented in 2005 followed the ramping rates in the San Juan Flow Recommendations. Releases were increased beginning April 27, 2005. A release rate of 4,400 cfs (125 cms) was reached on May 18, 2005, and the release remained at that rate until June 16, 2005. Releases were reduced to the base summer release rate of 500 cfs (14 cms) on June 24, 2005. At times higher than normal base flows were released from Navajo Reservoir during the late summer months during water year 2005. Releases from Navajo Reservoir from July through September 2005 averaged 574 cfs (16.3 cms) and were as high as 750 cfs (21 cms) in early-September. These releases were necessary due to decreasing flows in the San Juan River endangered fish critical habitat area (Farmington to Lake Powell). The San Juan Flow Recommendations call for an average weekly flow of between 500 cfs (14 cms) and 1,000 cfs (28 cms) in this reach of the river.

In response to the below average storage level in Navajo Reservoir at the end of water year 2004, an agreement was developed among water users who agreed to limit their water use in 2005 to the rates/volumes indicated in the agreement. The 2005 "Recommendations for Administration and Operation of the San Juan River" was similar to the agreements that were developed in 2003 and 2004. Ten major water users, including 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 2005, 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 USFWS, and the San Juan Recovery Program all provided input to the recommendations, and the recommendations were accepted for reservoir operation and river administration purposes by Reclamation and the New Mexico State Engineer. Because of sufficient inflow into Navajo Reservoir in 2005, no shortages occurred during the 2005 water year.

In March 2005, the repair of the 4' x 4' tandem outlet gates at Navajo Dam was completed.

Navajo Reservoir storage levels are expected to be above average in 2006 under the most probable and maximum probable inflow scenarios. Minimum allowable releases from the reservoir will likely be 250 cfs (7 cms) through the fall and winter, subject to NEPA compliance. Under all inflow conditions in 2006, the maximum spring peak release as provided for in the San Juan Flow Recommendations is likely to occur.

Lake Powell

Inflow to Lake Powell was above average in water year 2005, and for the first time since water year 1999, the water surface elevation at Lake Powell increased. Five years of extreme drought in the Colorado River Basin caused the water surface elevation of Lake Powell to decline over a five and a half year period (from September 1999 through April 2005). The water surface elevation of Lake Powell reached a low on April 8, 2005, at 3,555.1 feet (1,083.6 meters), 144.9 feet from full pool. Lake Powell had not been this low since 1969, prior to the reservoir's first filling in 1980. Reservoir storage on April 8, 2005, was only 33 percent of capacity. Above average inflow reversed this trend in 2005. On September 30, 2005, the water surface elevation of Lake Powell had increased to 3,602.0 feet (1,097.9 meters), 98.0 feet (29.9 meters) from full pool.

Lake Powell began water year 2005 with 9.169 maf (11,310 mcm) of water in storage (38 percent of capacity), 4.77 maf (5,880 mcm) lower than that of Lake Mead. As water year 2005 ended on September 30, 2005, Lake Powell storage had increased to 11.94 maf (14,730 mcm) or 49 percent of capacity. Because of reduced storage, and Lake Powell storage being less than Lake Mead storage, releases from Glen Canyon Dam in 2005 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 was above average for the majority of water year 2005. While inflow was above average, the inflow volume was not

sufficient to trigger storage equalization releases from Lake Powell to Lake Mead. The total release from Lake Powell in water year 2005 was 8.23 maf (10,150 mcm).

April through July unregulated inflow to Lake Powell in water year 2005 was 8.81 maf (10,900 mcm), or 111 percent of average. Water year 2005 unregulated inflow was 12.62 maf (15,560 mcm), or 105 percent of average. Lake Powell reached a seasonal peak elevation of 3,608.4 feet (1,099.8 meters), 91.6 feet from full, on July 14, 2005.

In 2003 and 2004, Reclamation conducted a NEPA process to study the effects of implementing an interim 602(a) storage guideline to assist in the determination of the quantity of water considered necessary to be in storage as of September 30 of each year as required by Section 602(a) of the Colorado River Basin Project Act. The guideline was originally proposed by the Colorado River Basin States (65 Federal Register 48537, August 8, 2000). A Final Environmental Assessment titled "Adoption of an Interim 602(a) Storage Guideline" was completed in March 2004. A Finding of No Significant Impact (FONSI) was approved by the Regional Directors of Reclamation's Upper and Lower Colorado Regions in March 2004. Under the Interim 602(a) Guideline, 602(a) storage requirements determined in accordance with Article II(1) of the Operating Criteria will utilize a value of not less than 14.85 maf (elevation 3,630 feet) for Lake Powell through the year 2016.

On April 24, 2002, members of the Glen Canyon Adaptive Management Work Group (AMWG) recommended to the Secretary that a 2-year experimental flow test be made from Glen Canyon Dam beginning in water year 2003. The recommendation addressed the decline of two key resources downstream of Glen Canyon Dam: fine sediment and the endangered humpback chub. On August 11, 2004, members of the AMWG recommended to the Secretary that replication of the daily high fluctuating releases (5,000 to 20,000 cfs) continue adaptively from January through April of 2005. The AMWG also proposed that if the Secretary proceeded to implement a high-flow release to mobilize sediment in water year 2005, that such release take place in November 2004 rather than January 2005.

To document the proposed experimental flows for water year 2003 and 2004, Reclamation, the National Park Service, and the United States Geological Survey jointly prepared the Proposed Experimental Releases from Glen Canyon Dam and Removal of Non-Native Fish EA (September 2002), under NEPA. The EA incorporated a Biological Assessment for the Fish and Wildlife Service under the ESA. A FONSI on the experimental releases was signed by the three agencies on December 6, 2002. To address the AMWG's August 11, 2004, recommendations for water years 2005 and 2006, a supplemental EA was prepared by these same three agencies. A FONSI for the supplemental EA was signed on November 11, 2004.

Large flow events on the Paria River and other tributaries below Glen Canyon Dam from September 2004 through November 2004 resulted in the required input of sediment to trigger a high-flow test, as described in the EA and supplemental EA. Beginning on Sunday, November 21, 2004, consistent with the NEPA documentation, a high-flow test from Glen Canyon Dam was initiated. Releases were increased to powerplant capacity, and subsequently releases from the river outlet tubes (bypass tubes) were initiated. A peak flow of approximately 41,000 cfs was released for 60 hours. The total volume of water bypassing the powerplant during the high-flow

test was 92,700 acre-feet (114 mcm). The goal of the high-flow test was to mobilize and redistribute sediment input from tributaries downstream from the dam to enlarge existing beaches, sandbars, and backwaters. Post high-flow assessment data have documented substantial increases to beaches and sandbars in upper Marble Canyon. Monitoring of these features will continue to assess their longevity.

Daily high fluctuating releases (fish suppression flows) from Glen Canyon Dam, another aspect of the experimental flows, were carried out from January 2 through April 8, 2005. Releases during this period ranged between a high of 20,000 cfs (566 cms) to a low of 5,000 cfs (142 cms) each day (except Sundays) under revised ramping rates as described in the EA and the supplemental EA. These fish suppression flows are intended to benefit the endangered humpback chub by reducing the spawning and recruitment of nonnative fish.

On August 31, 2005, the AMWG approved a budget and work plan for 2006. Included in the work plan is a recommendation to return to operations consistent with the parameters of the Glen Canyon Operating Criteria (the ROD for the Glen Canyon Dam Final Environmental Impact Statement) in January through April of 2006. Pending consideration by the Secretary of this recommendation, fish suppression flows are not anticipated in 2006. The work plan approved by the AMWG also recommends that test releases greater than powerplant capacity not be implemented in 2006. This recommendation reflects the need to fully assess the effects of the November 2004 test release on sediment conservation in Marble and Grand Canyons during 2006.

Beginning on September 3, 2005, and continuing through October 31, 2005, a low-flow test release took place from Glen Canyon Dam. This test release was implemented to analyze the effects of two release regimes, steady and limited fluctuating releases, on endangered humpback chub habitats and on conservation of fine sediment in the river corridor below Glen Canyon Dam. From September 3, 2005, through September 20, 2005, the daily fluctuation range in Glen Canyon Dam releases was limited to a low of 6,500 cfs (184 cms) to a high of 9,000 cfs (255 cms). From September 21, 2005, through October 7, 2005, steady releases of 8,000 cfs (227 cms) were implemented. From October 8, 2005, through October 19, 2005, the 6,500 cfs (184 cms) to 9,000 cfs (255 cms) fluctuating flow regime was repeated. From October 20, 2005, through October 31, 2005, releases returned to the steady 8,000 cfs (227 cms) release regime, completing the test.

During water year 2006, under the most probable and minimum probable inflow scenario, the objective shall be to maintain a minimum release of water from Lake Powell of 8.23 maf (10,150 mcm) consistent with Article II(2) of the Operating Criteria. Under the maximum probable inflow condition, an annual release of approximately 11.4 maf (14,060 mcm) would be required to equalize storage between Lake Powell and Lake Mead on September 30, 2006. Releases to equalize storage between Lakes Powell and Mead will be made in 2006, if storage in Lake Powell is projected to be greater than 14.85 maf (elevation 3,630 feet) on September 30, 2006, and active storage in Lake Powell is greater than active storage in Lake Mead. Under the most probable inflow in 2006, the projected water surface elevation at Lake Powell on September 30, 2006, will be 3,625.5 feet (1,105.1 meters) with 13.90 maf (17,150 mcm) of storage (57 percent of capacity).

In 2006, scheduled maintenance activities at Glen Canyon Dam power plant 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 experimental releases.

Because of less than full storage conditions in Lake Powell resulting from the drought in the Colorado River Basin, releases for dam safety purposes are highly unlikely in 2006. 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, Mar. 3, 1997).

Daily and hourly releases in 2006 will be made according to the parameters of the ROD for the Glen Canyon Dam Final Environmental Impact Statement (GCDFEIS) preferred alternative and the Glen Canyon Dam Operating Criteria, as shown in Table 5. Exceptions to these parameters may be made during power system emergencies or for purposes of humanitarian search and rescue.

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

	(cfs)	(cms)	Conditions
Maximum flow [7]	25,000	708.0	
Minimum flow	5,000	141.6	Nighttime
	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 [8]	5,000 / 8,000	141.6 / 226.6	

[7] May be exceeded during beach/habitat building flows, habitat maintenance flows, or when necessary to manage above average hydrologic conditions.

[8] 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 volumes over 0.800 maf (990 mcm).

Releases from Lake Powell in water year 2006 will continue to reflect consideration of the uses and purposes identified in the authorizing legislation for Glen Canyon Dam. Powerplant releases and Beach/Habitat Building Flows 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. The schedule of monthly releases under the most probable inflow scenario for water year 2006 is displayed in Table 6.

Table 6. Scheduled Monthly Releases from Lake Powell in Water Year 2006 Under Most Probable Inflow Conditions[9]

Month	Monthly Release (maf)	Monthly Release (mcm)
October 2005	0.500 maf	620 mcm
November 2005	0.500 maf	620 mcm
December 2005	0.800 maf	990 mcm
January 2006	0.800 maf	990 mcm
February 2006	0.800 maf	990 mcm
March 2006	0.600 maf	740 mcm
April 2006	0.600 maf	740 mcm
May 2006	0.600 maf	740 mcm
June 2006	0.800 maf	990 mcm
July 2006	0.865 maf	1070 mcm
August 2006	0.865 maf	1070 mcm
September 2006	0.500 maf	620 mcm

Lake Mead

For calendar year 2005, the Normal condition was the criterion governing the operation of Lake Mead in accordance with Article III(3)(a) of the Operating Criteria, Article II(B)(1) of the Decree, and Section 2(A)(1) of the Interim Surplus Guidelines. A volume of 1.5 maf (1,850 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.

Tributary inflows into Lake Mead for water year 2005 are approximately 1.84 maf (2,269 mcm), 225% of average, and were due to Pacific storm events that started in October 2004 and continued through early spring 2005. These storms also resulted in demands below Hoover Dam being reduced. With the reduced downstream demands and above average tributary inflows, Lake Mead gained 1.28 maf (1,579 mcm) in storage.

Lake Mead began water year 2005 at elevation 1,125.86 feet (343 meters), with 13.9 maf

[9] Modifications to scheduled monthly releases from Lake Powell would be made based on changes in forecast conditions or other relevant factors.

(17,146 mcm) in storage, which is 54 percent of the conservation capacity of 25.877 maf (31,919 mcm). Lake Mead's elevation increased to elevation 1,147.66 (349 meters) by the end of March 2005. After March 2005, Lake Mead steadily declined and ended the water year at elevation of 1,138.36 feet (347 meters) with 15.219 maf (18,773 mcm) in storage, 59 percent of capacity.

The total release from Lake Mead through Hoover Dam during water year 2005 was 7.941 maf (9,795 mcm). The total release from Lake Mead through Hoover Dam during calendar year 2005 is projected to be 8.321 maf (10,264 mcm). Consumptive use from Lake Mead during calendar year 2005 diverted through the Robert Griffith Water Project is projected to be 0.282 maf (348 mcm).

Under the most probable inflow conditions during water year 2006, Lake Mead will be at its maximum elevation of 1,139.38 feet (347 meters), with 15.327 maf (18,906 mcm) in storage, at the end of February 2006. Lake Mead will decline during the water year to reach its minimum elevation of 1,125.50 feet (343 meters), with 13.901 maf (17,147 mcm) in storage, at the end of September 2006.

Based on the August 2005, 24 Month Study, Lake Mead's elevation on January 1, 2006, was projected to be 1136.74 feet (346 meters). Therefore, in accordance with Section 7 of the ISG, the Partial Domestic Surplus Condition will govern the releases from Lake Mead in calendar year 2006. Releases from Lake Mead through Hoover Dam for water year 2006 are projected to be 9.506 maf (11,726 mcm). For the 2006 calendar year, releases through Hoover Dam are projected to be 9.433 maf (11,636 mcm). It should be noted, however, that the projected releases in 2006 currently reflect demands under Normal conditions for the Metropolitan Water District of Southern California (MWD), the Central Arizona Project (CAP), and the Southern Nevada Water Authority (SNWA), per their request. This does not, however, preclude MWD, CAP, and SNWA from requesting Partial Domestic Surplus water in calendar year 2006.

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. Because of above average tributary flows into Lake Mead and reduction in releases from Hoover Dam in water year 2005, the spring water surface elevations on Lake Mead increased by 7 feet (2.1 meters) from the beginning of February to the end of April, providing rising spring water surface elevations for spawning razorback suckers. Based on the anticipated operation of Lake Powell for water year 2006, no changes in operations to provide rising elevations in Lake Mead are expected in the spring of 2006.

Lakes Mohave and Havasu

At the beginning of water year 2005, Lake Mohave was at an elevation of 639.54 feet (194.9 meters), with an active storage of 1.605 maf (1,980 mcm). The water level of Lake Mohave was regulated between elevation 635 feet (193.55 meters) and 644 feet (196.29 meters) throughout

the water year, ending at an elevation of 638.32 feet (194.6 meters) with 1.573 maf (1,940 mcm) in storage. The total release from Lake Mohave through Davis Dam for water year 2005 was 7.710 maf (9,510 mcm) for downstream water use requirements. Calendar year 2005 total release is projected to be 8.061 maf (9,943 mcm).

For water year 2006, Davis Dam is expected to release 9.150 maf (11,287 mcm). For the 2006 calendar year, releases are projected to be 9.069 maf (11,187 mcm). The water level in Lake Mohave will be regulated between an elevation of 630 feet (192.02 meters) and 645 feet (196.06 meters).

Lake Havasu started water year 2005 at an elevation of 448.47 feet (136.69 meters) with 0.589 maf (727 mcm) in storage. The water level of Lake Havasu was regulated between elevation 445 feet (135.6 meters) and 450 feet (137.2 meters). During the water year, 6.003 maf (7,405 mcm) was released from Parker Dam. Calendar year 2005 total release is projected to be 6.298 maf (7,768 mcm). Diversions from Lake Havasu during calendar year 2005 by the CAP and the MWD are projected to be 1.35 maf (1,665 mcm) and 0.852 maf (1,051 mcm), respectively.

For water year 2006, Parker Dam is expected to release 6.929 maf (8,547 mcm). For the 2006 calendar year, releases are projected to be 6.857 maf (8,458 mcm). Diversions from Lake Havasu in calendar year 2006 by the CAP and the MWD are expected to be 1.6 maf (1,974 mcm) and 0.640 maf (789 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 Parker Dam, a major overhaul of Unit No. 3 was completed on September 14, 2005. This overhaul included replacing the turbine, re-winding the generator, replacing the excitation system with a new solid state system, and installing solid state relaying for the generator and transformers. The capacity and efficiency have been increased, with less cavitation and reduced outages. After sufficient operating experience, the Bureau of Reclamation and the funding board customers will decide how to continue with the other three units for rehabilitation.

During 2006, Lake Mohave will continue to be operated under the constraints as described in the Interim Surplus Guidelines' Biological and Conference Opinion on Lower Colorado River Operations and Maintenance and 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 ageing 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 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 to Lake Mohave. The razorback suckers grow very quickly, usually exceeding 10 inches in length by September.

In 2004, 17,266 razorback suckers (325 mm minimum size) were repatriated into Lake Mohave from all sources. In 2005, 60,512 wild razorback suckers were captured from natural spawning congregations on Lake Mohave and delivered to Willow Beach National Fish Hatchery.

Bill Williams River

Beginning in October 2004, Pacific storm events began bringing above average precipitation into the southwestern region of the United States and continued through the spring of 2005. These storm events brought much needed precipitation to the Lower Basin of the Colorado River, increasing tributary and main stem flows.

The increased flows into Alamo Dam on the Bill Williams River upstream of Lake Havasu triggered flood control releases per the Corps regulations. Flood control releases from Alamo Dam began in November 2004 and lasted through March of 2005. Close coordination between Reclamation, the Corps, and other water users allowed for conservation of these releases to meet downstream demands to the greatest extent possible.

Total tributary inflow from the Bill Williams River into the mainstem totaled 0.557 maf (687 mcm) for water year 2005, 511% of average.

Senator Wash and Laguna Reservoirs

Operations at Senator Wash Reservoir allow regulation of water deliveries to United States 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 Treaty obligations. Senator Wash Reservoir is the only major storage facility below Parker Dam (approximately 142 river miles downstream) and has storage capacity of 13,836 acre-feet at full pool elevation of 251 feet. 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 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 feet (9,144 acre-feet of storage, a loss of about 4,700 acre-feet of storage from its original capacity.). Excursions to 240 feet are allowed for no more than 10 consecutive days. This reservoir restriction is expected to continue in 2006.

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. The storage capability of Laguna Reservoir has diminished from about 1,500 acre-feet to about 400 acre-feet 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 at the Laguna Reservoir is on-going. The design engineering and environmental compliance process are in progress. Dredging to restore its capacity is scheduled to begin in the spring of 2006, subject to the availability of funds and obtaining the necessary permits to perform the work. It is anticipated that the dredging will be completed in calendar year 2008.

Maintenance dredging of the Laguna Desilting Basin, located above Laguna Dam, was completed in calendar year 2004. The desilting basin at Laguna was also extended by about 1,500 feet in calendar year 2004.

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) to the Mexicali Valley in Mexico. The diversions also supply much of the domestic and industrial water needs in the Yuma area. Due to reductions in water demand caused by rain in January, February, and March of 2005, the flows arriving at Imperial Dam for calendar year 2005 are expected to be 5.344 maf (6,592 mcm). The flows arriving at Imperial Dam for calendar year 2006 are projected to be 5.544 maf (6.834 mcm).

Dredging of Imperial Reservoir began in late 2004 and is expected to continue through 2005 and part of 2006. This dredging is done periodically to remove sediment that might impede diversions to water users from Imperial Dam. This dredging also temporarily increases the storage behind Imperial Dam by about 500 acre-feet.

Gila River Flows

In January, February, and March 2005, rainfall in the north and central portions of Arizona caused the reservoirs on the Verde River to fill and spill downstream to Granite Reef Diversion Dam on the Salt River near Phoenix, AZ. Most of these flows were in excess of Salt River Project needs and were released downstream into the Gila River and to Painted Rock Dam. Flows started arriving at Painted Rock Dam on January 6, 2005, and releases from Painted Rock Dam began on January 7, 2005. Gila River flows reached the Colorado River on February 3, 2005. Releases from Painted Rock Dam peaked at about 2,500 cfs on February 18, 2005, and were gradually reduced to 300 cfs by July 8, 2005. Flows from Painted Rock Dam ceased to enter the Colorado River near Yuma around August 8, 2005. As Gila River flows into the Colorado River increased, the deliveries to Mexico from Imperial Dam were reduced to utilize as

much of the Gila River flows to meet Mexico's water order at NIB as possible, thus conserving Colorado River system storage.

Total inflow from the Gila River into the mainstem was 0.264 maf (326 mcm) for water year 2005.

Additional Regulatory Storage

Reclamation has completed a study that evaluates the needs and develops options for additional water storage facilities on the main stem of the Colorado River below Parker Dam, and adjacent to the All-American Canal. Some of these projects may be implemented under the authority of the Colorado River Front Works and Levee System. Additional storage will allow for more efficient management of water below Parker Dam. The study, developed in cooperation with the Imperial Irrigation District, Coachella Valley Water District, San Diego County Water Authority, and the MWD, recommended that additional storage be constructed at a site north of Drop 2 near the All-American Canal.

The initial storage to be constructed is estimated to be 4,000 af, with the option to increase the storage by an additional 4,000 af, if funding is available. Design engineering and environmental compliance activities have begun. Construction of the Drop 2 reservoir is scheduled to start in calendar year 2006 and the work should be completed in late calendar year 2008 or early in calendar year 2009, subject to the availability of funds and obtaining the necessary permits to perform the work.

Yuma Desalting Plant

The Yuma Desalting Plant (YDP) was not operated in calendar year 2005 and is being maintained in a ready reserve status. In calendar year 2005, the amount of water discharged through the Main Outlet Drain (bypass flows) is anticipated to be 115,000 acre-feet (142 mcm) at an approximate concentration of total dissolved solids of 2,430 ppm. Water demands 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 14,000 acres that is within a Biosphere Reserve in Mexico. These flows do not count as part of Mexico's 1.5 maf (1,850 mcm) allotment under the Treaty of 1944.

On October 26, 2005, Reclamation submitted to Congress a report that describes activities required to achieve state-of-the-art operations of the 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 opportunities that do not negatively affect the Cienega de Santa Clara. Reclamation has initiated a public process to address methods to replace or recover flows to the Cienega de Santa Clara.

Delivery of Water to Mexico

Total delivery to Mexico for calendar year 2005 is projected to be approximately 1.610 maf (1,974 mcm), an over-delivery of approximately 0.110 maf (135.7 mcm). Of the total delivery, approximately 0.120 maf (148 mcm) is projected to be delivered at the Southerly International Boundary (SIB) and 1.490 maf (1,838 mcm) is projected to be delivered at the NIB. The over-deliveries in 2005 resulted from a combination of rejected water from water users after rain storms, side-wash inflow into the Gila and Colorado Rivers, flows from the Bill Williams River, flows from the Gila River, and spills from irrigation facilities below Imperial Dam to the river. The Mexican section of the IBWC requested delivery of 208 af at the international boundary for Tijuana from September 26, 2005, to October 1, 2005. Diversions from Lake Havasu will be 224 af to accommodate losses in transit to the international boundary.

In 2006, it is anticipated that 140,000 acre-feet will be delivered to Mexico at the SIB. In accordance with Minute No. 310 and the agreement [10] for delivery, up to 1,200 acre-feet per month (1.48 mcm) may be delivered for Tijuana, Baja 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. Improvements to the river routing software used to schedule the releases from Parker Dam have also reduced the uncertainty in estimating the flows arriving at Imperial Dam, further helping to reduce non-storable flows arriving at Imperial Dam. As mentioned previously, other storage options are also being investigated which will improve the control of deliveries below Parker Dam when constructed.

Measures that are being taken to ensure that the salinity differential requirements at the NIB will be met include 1) reducing drainage pumping in the South Gila Valley in areas with more than adequate depths to groundwater when necessary; 2) returning some drainage flows from the Yuma Mesa Conduit to the Yuma Valley Drainage System and then to the boundary pumping plant at the SIB with Mexico; 3) ensuring that no drainage water from the Main Outlet Drain Extension will be spilled to the Colorado River; and 4) reducing drainage pumping from the Yuma Mesa Well Field when necessary near areas with acceptable depths to groundwater (generally wells YM 10-13). These reductions are generally made during periods when Mexico's water order is the lowest —normally September, October, and November.

As stated in Minute 242, the maximum allowable differential is 145 ppm by the United States' measurement or count and 151 ppm by the Mexican count. The salinity differential for calendar year 2005 is projected to be 111 ppm by the United States' count.

The Yuma Mesa Conduit has been out of service all of April and May 2005, and part of June of 2005 for construction of a bifurcation structure and new outlet structure by the Yuma County Water Users' Association. In addition, outages were needed in July and August of 2005 on the

[10] "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 calendar year 2008.

South Gila Drainage facilities to do repair work and to install Supervisory Control and Data Acquisition equipment. Thus, drainage returns to the river will be lower than normal in 2005. Drainage returns to the river in 2006 should be back to more normal levels. The salinity of flows delivered to Mexico at NIB from February through June 2005 have been lower than normal due to low saline flows from the Bill Williams river in February and March, and low saline flows from the Gila River from February through June 2005. It is expected that the salinity of flows at Imperial Dam and NIB will return to more normal values during the last half of 2005 and in 2006.

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. To accomplish the reduction in salinity, the United States constructed a diversion channel to bypass up to 8,000 af 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. Currently, the facilities required for real time monitoring and control of the flow and salinity of water delivered to SIB are not fully operational. Work will continue on these facilities at SIB in fiscal year 2006. In 2005 and 2006, about 4,000 acre-feet of water is expected to be spilled to the diversion channel each year for salinity control.

2006 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.

Article I(2) of the Operating Criteria allows for revision of this 2006 AOP to reflect the current hydrologic conditions by June of 2006. Any revision in the AOP would occur only after a re-initiation of the AOP consultation process as required by law.

Upper Basin Reservoirs

The objective minimum release criterion will most likely control the annual release from Glen Canyon Dam during water year 2006 in accordance with Article II(2) of the Operating Criteria unless spill avoidance and/or the storage equalization criteria in Article II(3) is controlling. Under the most probable and minimum probable inflow scenario, the objective shall be to maintain a minimum release of water from Lake Powell of 8.23 maf (10,150 mcm) in water year 2006. Under the maximum probable inflow scenario, storage equalization would control the release of water from Lake Powell in water year 2006.

Section 602(a) of the *Colorado River Basin Project Act* provides for the storage of Colorado River water in Upper Basin reservoirs that the Secretary finds 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. Pursuant to Section 602(b), as amended, the Secretary is required to make this determination after consultation with the Upper Colorado River Commission and representatives from the three Lower Division States and after taking into consideration all relevant factors including historic stream flows, the most critical period of record, the probabilities of water supply, and estimated future depletions. Water not required to be so stored will be released from Lake Powell:

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

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

- to avoid anticipated spills from Lake Powell.

Taking into consideration all relevant factors required by Section 602(a)(3) of the *Colorado River Basin Project Act*, the Operating Criteria, and the Interim 602(a) Storage Guideline, it is determined that the active storage in Upper Basin reservoirs forecast for September 30, 2006, 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 V of the Interim 602(a) Storage Guideline, releases from Lake Powell greater than the minimum objective of 8.23 maf (10,150 mcm), to maintain, as nearly as practicable, active storage in Lake Mead equal to the active storage in Lake Powell will be made if storage in Lake Powell, on September 30, 2006, is projected to be greater then 14.85 maf (water surface elevation 3,630 feet) and active storage in Lake Powell is greater than active storage in Lake Mead.

In the event that the 2006 March mid-month inflow forecast projects combined live storage in Lakes Powell and Mead on September 30, 2006, to be less than actual combined live storage as of September 30, 2004, the Secretary will conduct a mid-year review to determine if hydrologic conditions warrant an adjustment to the release amount from Lake Powell for water year 2006.[11] This review would be conducted pursuant to Article I(2) of the Operating Criteria and would take place in April 2006. Any revision to the AOP would consider the purposes and benefits of Lake Powell and Lake Mead and would occur through the consultation process as required by applicable Federal law. Use of the combined live storage in the two lakes in this AOP does not establish a precedent with regard to future mid-year reviews nor does it prejudice any decision with regard to the ongoing process to develop Lower Basin shortage and coordinated management guidelines (70 Federal Register 57322, September 30, 2005).

Lower Basin Reservoirs

Pursuant to Article III of the Operating Criteria and consistent with the 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
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

[11] The March mid-month forecast is anticipated to be issued on or about March 15, 2006 by the Colorado Basin River Forecast Center. Reclamation's monthly operational model (the 24 Month Study) will be used to project the combined live storage of Lakes Powell and Mead as of September 30, 2006. The actual combined live storage as of September 30, 2004 was 23.106 maf.

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 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) consumptive use in accordance with Article III(3)(b) of the Operating Criteria and Article II(B)(2) of the Decree. The Interim Surplus Guidelines, which became effective February 26, 2001, and were first utilized in calendar year 2002, serve to implement the narrative provisions of Article III(3)(b) of the Operating Criteria and Article II(B)(2) of the Decree for the period through 2016. These specific interim surplus guidelines will be used annually by the Secretary to determine the quantity of water available for use within the Lower Division States.

Consistent with Section 7 of the Interim Surplus Guidelines, the August 2005 24-Month Study was used to forecast the system storage as of January 1, 2006. Based on this projection, the Partial Domestic Surplus condition will govern releases for use in the States of Arizona, Nevada, and California during calendar year 2006 in accordance with Article III(3)(b) of the Operating Criteria and Article II(B)(2) of the Decree.

Article II(B)(6) of the 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. Reclamation does not anticipate any available unused state apportionment for calendar year 2006 at this time. However, if any unused apportionment is available the Secretary shall allocate any available unused apportionment for calendar year 2006 in accordance with Article II(B)(6) of the Decree and Section 1(B) of the Interim Surplus Guidelines.

Water may be made available for diversion pursuant to 43 CFR Part 414[12] to contractors within the Lower Division States. The Secretary shall make Intentionally Created Unused Apportionment 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.

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 2006 with calendar year 2004 paybacks to begin in calendar year 2006.

The Colorado River Water Delivery Agreement requires payback of overruns 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 in calendar year 2006.

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 Decree, applicable statutes, contracts, rules, and agreements.

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[12] Offstream Storage of Colorado River Water; Development and Release of Intentionally Created Unused Apportionment in the Lower Division States: Final Rule (43 CFR Part 414).

As provided in Section 3 of the Interim Surplus Guidelines, the Secretary shall undertake a "mid-year review" pursuant to Article I(2) of the Operating Criteria, allowing for the revision of the current AOP, as appropriate, based on actual runoff conditions which are greater than projected or demands which are lower than projected. The Secretary shall revise the determination for the current year only to allow for additional deliveries. Any revision to the AOP may occur only through the AOP consultation process as required by applicable Federal law.

1944 U.S.-Mexico Water Treaty

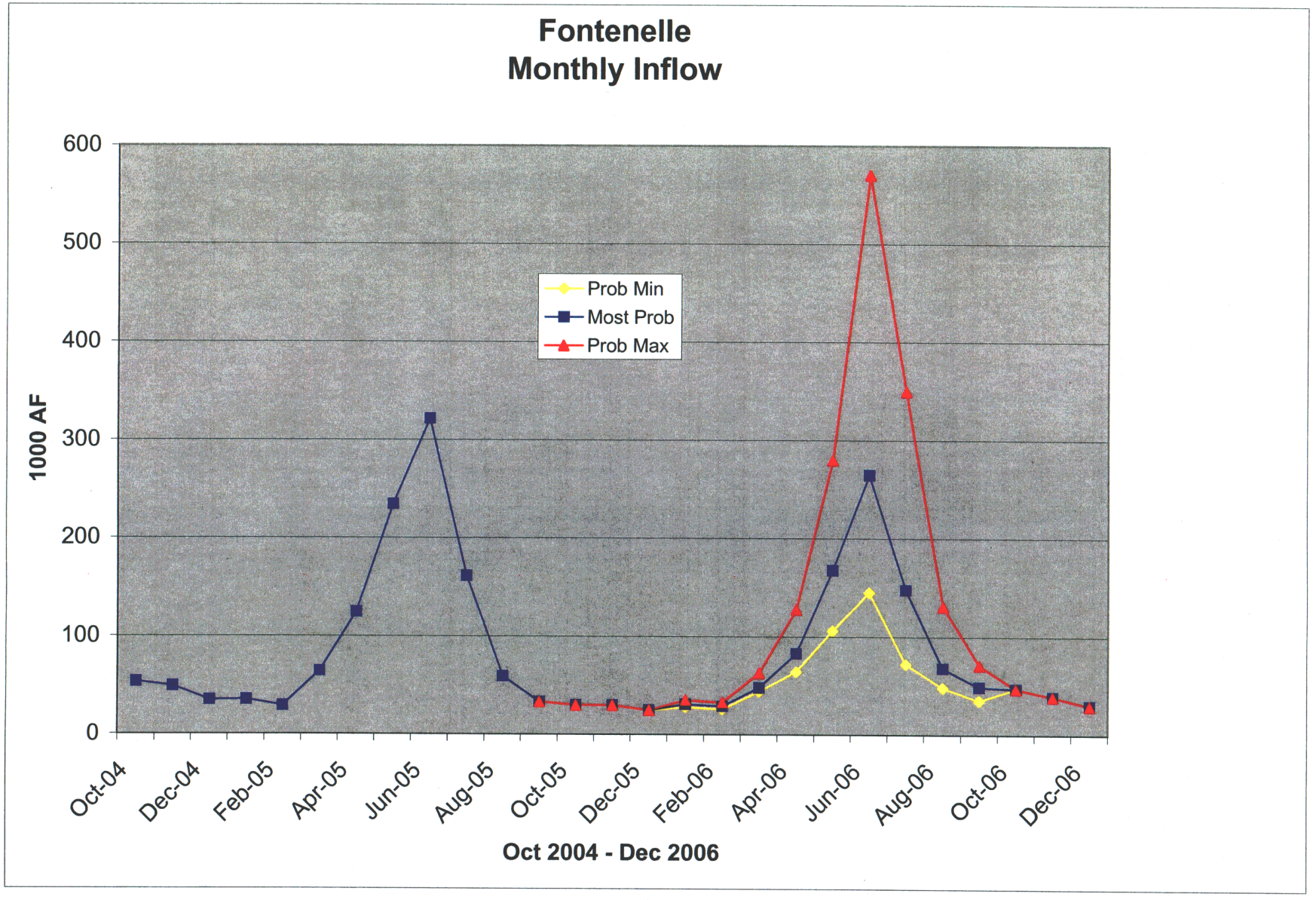
Under the most probable, minimum probable, and maximum probable inflow scenarios, water in excess of that required to supply uses in the United States will not be available. Vacant storage space in main stem reservoirs is substantially greater than that required by flood control regulations. Therefore, a volume of 1.5 maf (1,850 mcm) of water will be available to be scheduled for delivery to Mexico during calendar year 2006 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. The monthly quantity prescribed by those schedules may be increased or decreased by not more than 20% of the monthly quantity, upon thirty 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 Decree entered by the Supreme Court of the United States in Arizona v. California et al. (376 U.S. 340), as amended and supplemented; 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. Monthly inflow, monthly release, and end of month contents for Colorado River reservoirs (October 2004 through September 2006) under the probable maximum, most probable, and the probable minimum inflow scenarios, and historic end of month contents.


Fontenelle
Monthly Inflow
1000 AF
600
500
400
300
200
100
0
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
Feb-05
Apr-05
Jun-05
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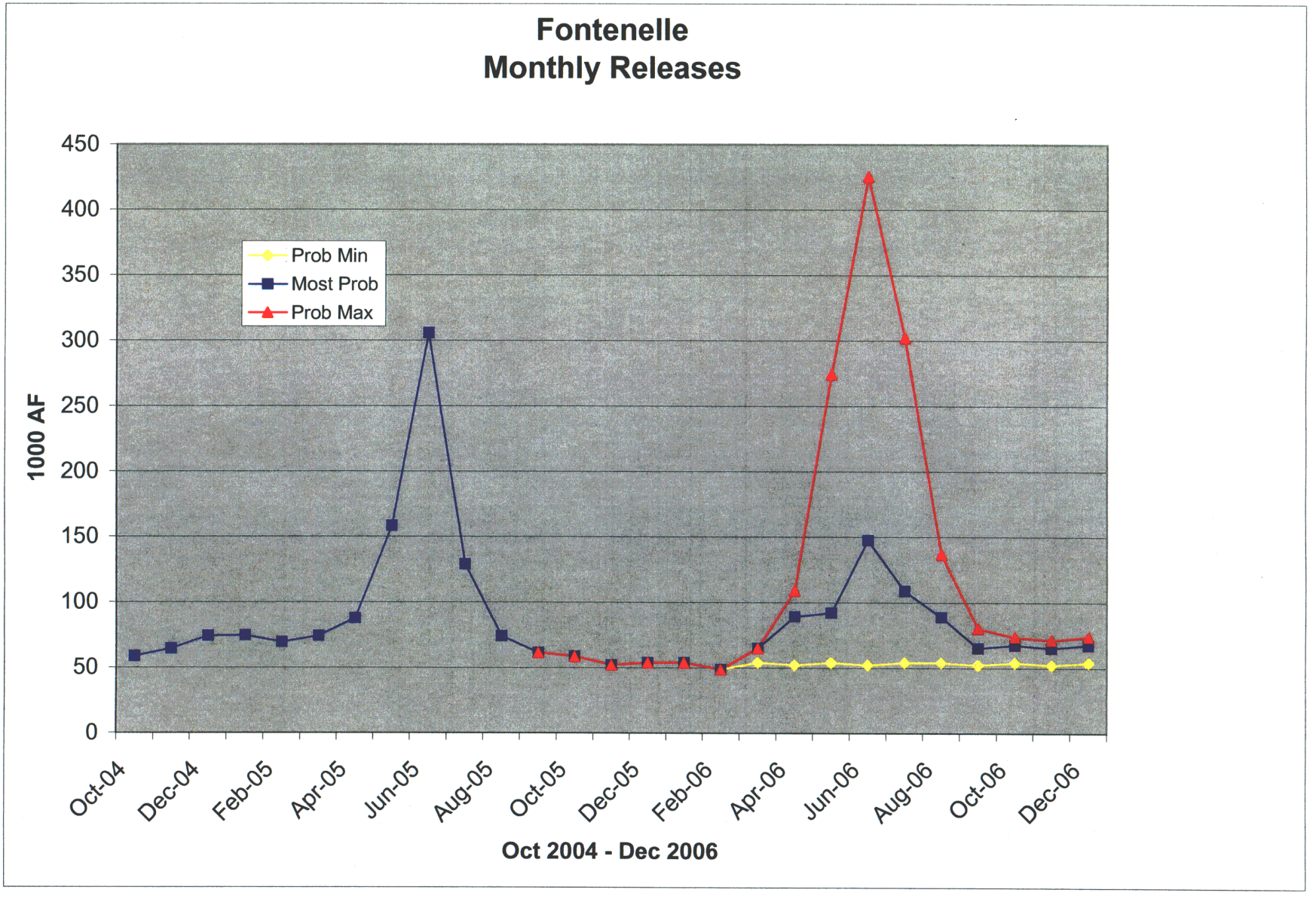
Aug-06
Oct-06
Dec-06
Oct 2004 - Dec 2006


Fontenelle
Monthly Releases
1000 AF
450
400
350
300
250
200
150
100
50
0
Prob Min
Most Prob
Prob Max
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Dec-04
Feb-05
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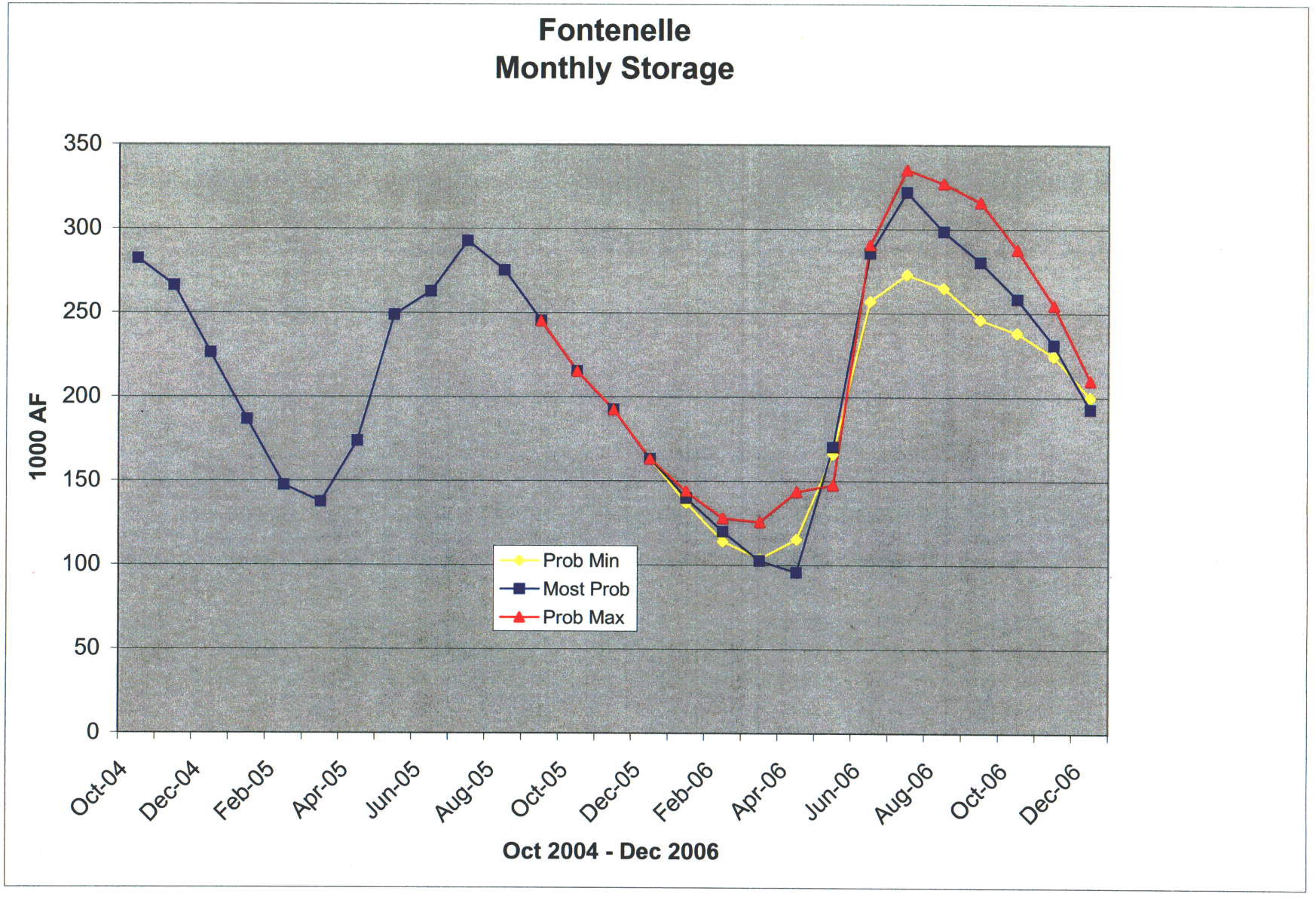
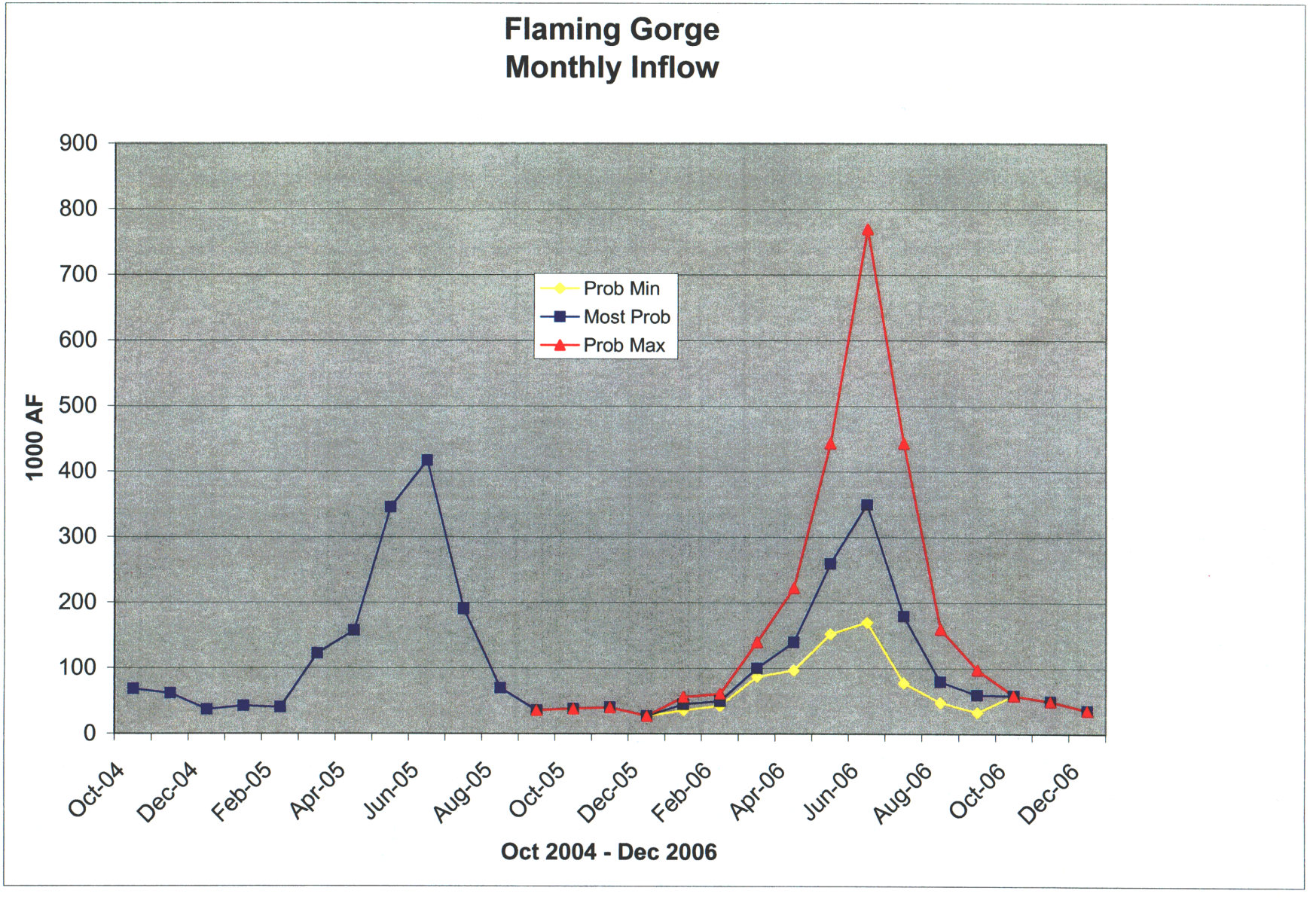
Oct-06
Dec-06
Oct 2004 - Dec 2006


Fontenelle
Monthly Storage
1000 AF
350
300
250
200
150
100
50
0
Oct-04
Dec-04
Feb-05
Apr-05
Jun-05
Aug-05
Oct-05
Dec-05
Feb-06
Apr-06
Jun-06
Aug-06
Oct-06
Dec-06
Prob Min
Most Prob
Prob Max
Oct 2004 - Dec 2006


Flaming Gorge
Monthly Inflow
1000 AF
900
800
700
600
500
400
300
200
100
0
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
Feb-05
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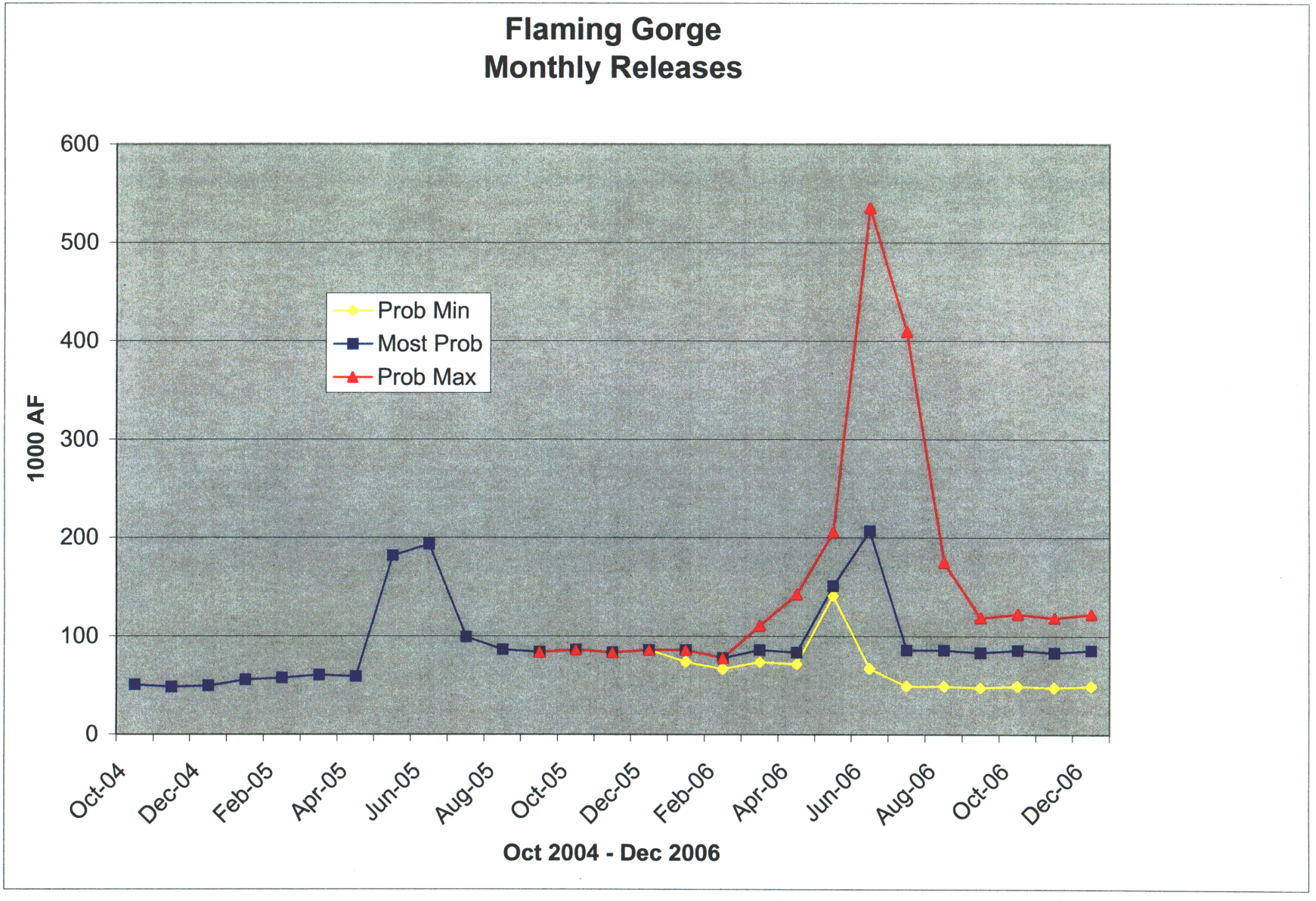
Oct-06
Dec-06
Oct 2004 - Dec 2006


Flaming Gorge
Monthly Releases
600
500
400
300
200
100
0
1000 AF
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
Feb-05
Apr-05
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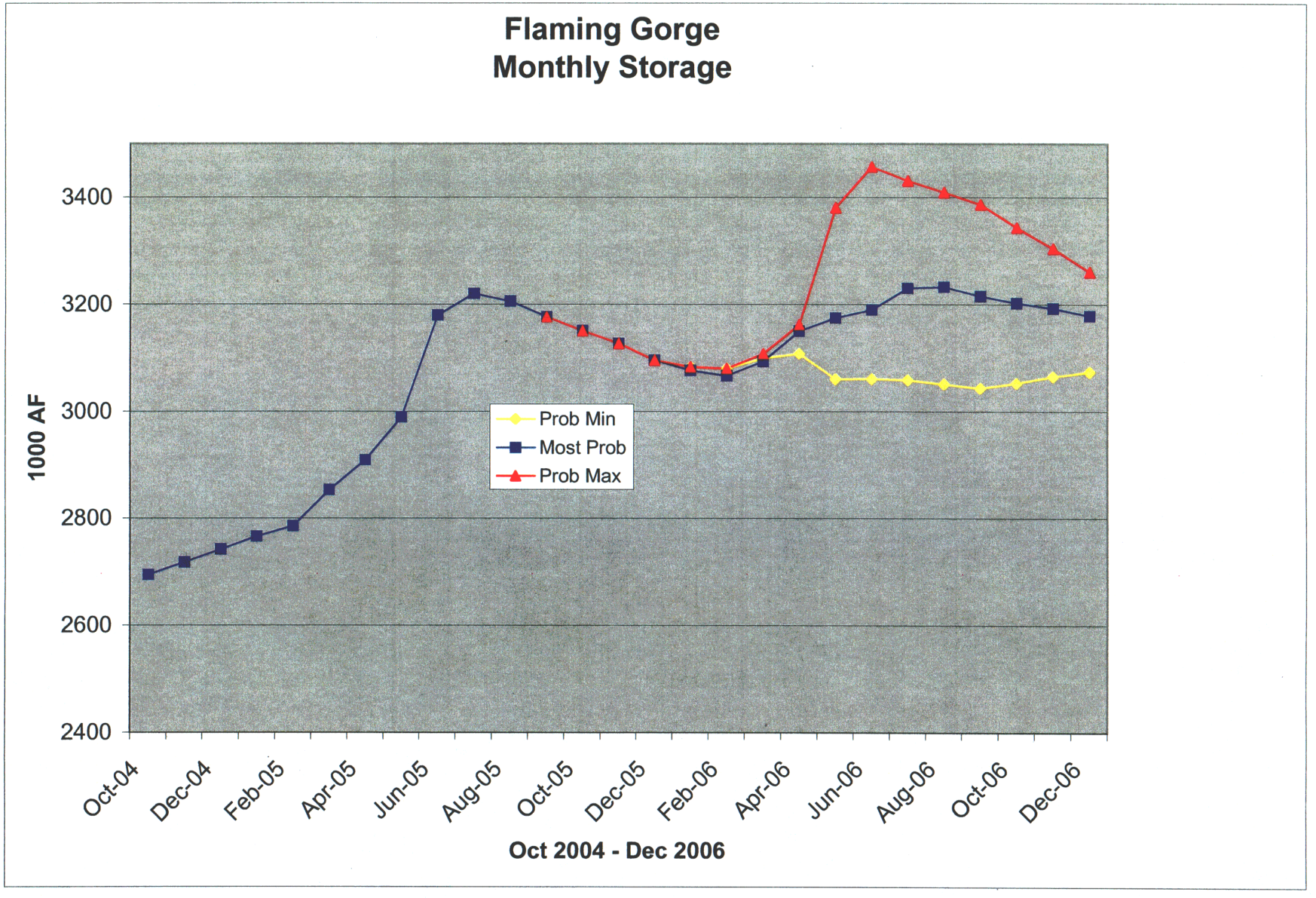
Oct-06
Dec-06
Oct 2004 - Dec 2006


Flaming Gorge
Monthly Storage
1000 AF
3400
3200
3000
2800
2600
2400
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
Feb-05
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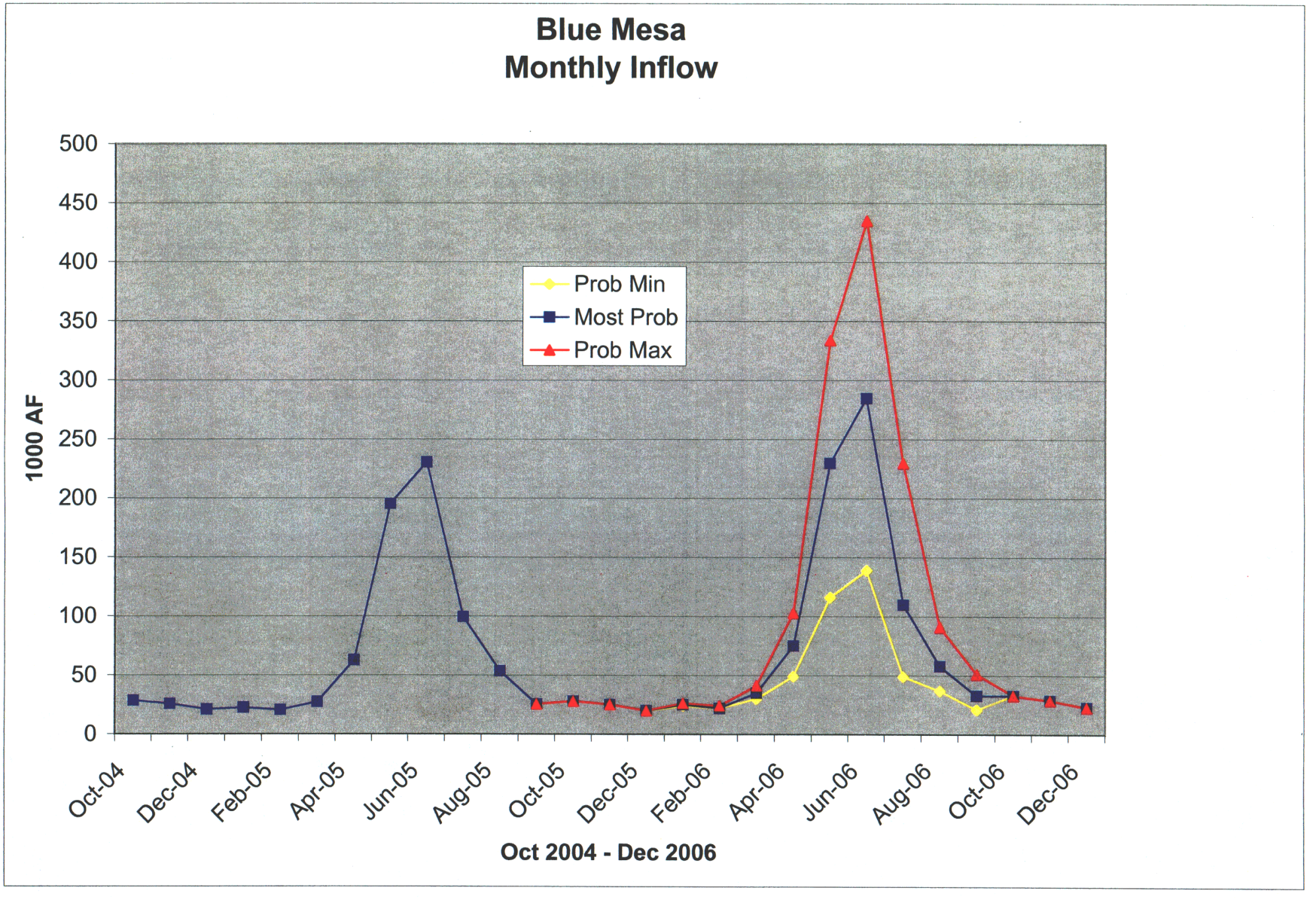
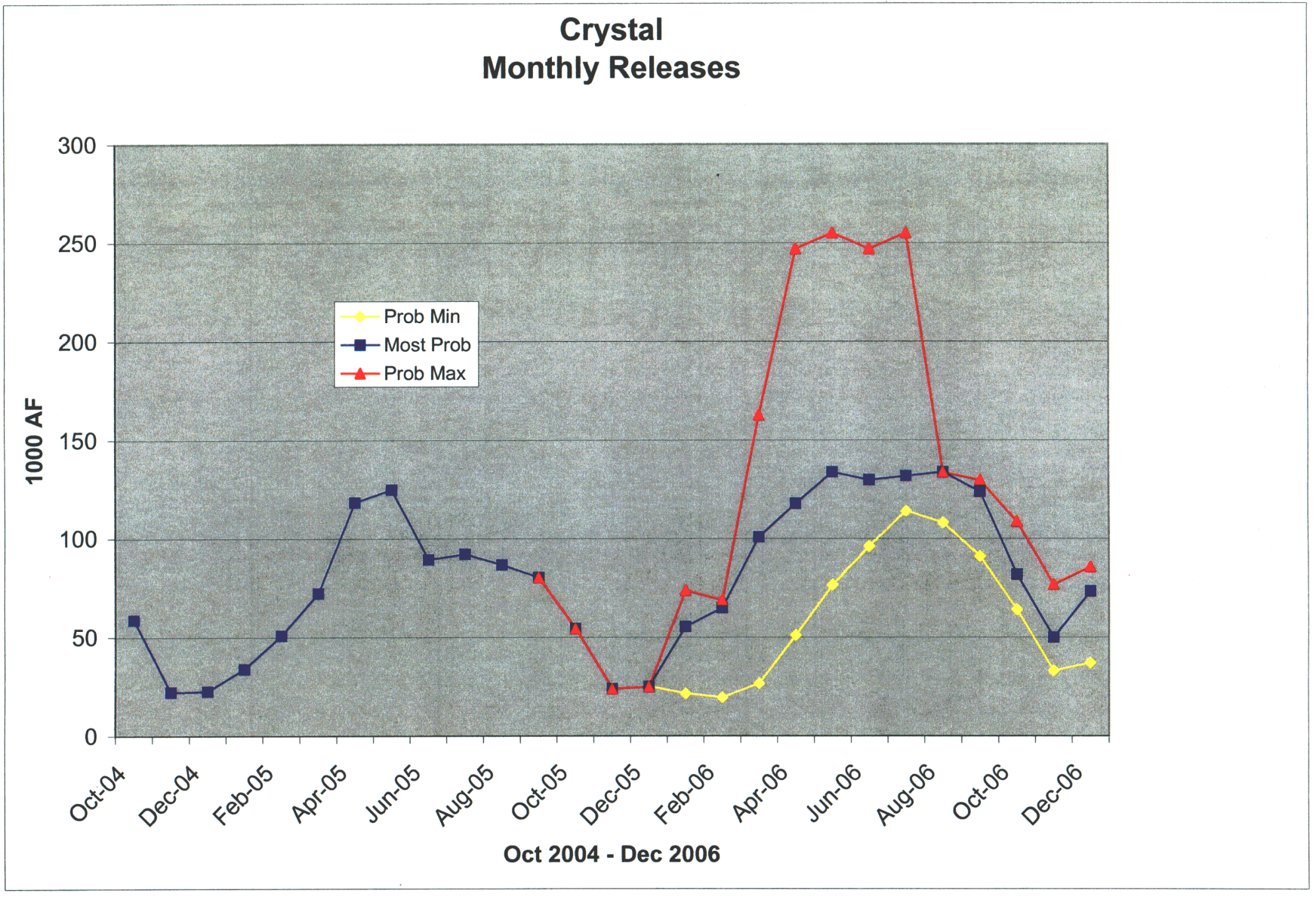
Oct-06
Dec-06
Oct 2004 - Dec 2006


Blue Mesa
Monthly Inflow
1000 AF
500
450
400
350
300
250
200
150
100
50
0
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
Feb-05
Apr-05
Jun-05
Aug-05
Oct-05
Dec-05
Feb-06
Apr-06
Jun-06
Aug-06
Oct-06
Dec-06
Oct 2004 - Dec 2006


Crystal
Monthly Releases
300
250
200
150
100
50
0
1000 AF
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
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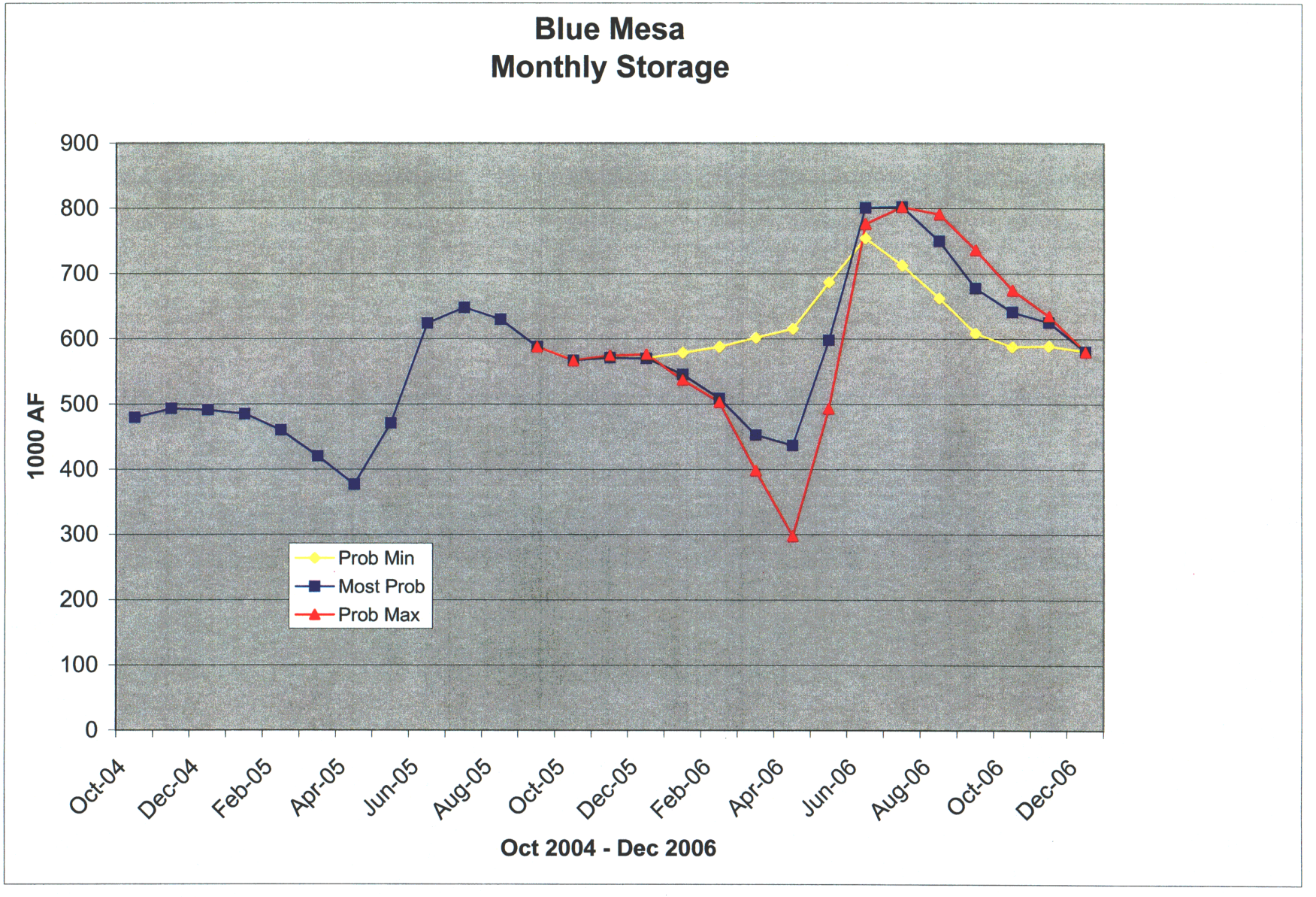
Oct-06
Dec-06
Oct 2004 - Dec 2006


Blue Mesa
Monthly Storage
1000 AF
900
800
700
600
500
400
300
200
100
0
Prob Min
Most Prob
Prob Max
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Dec-04
Feb-05
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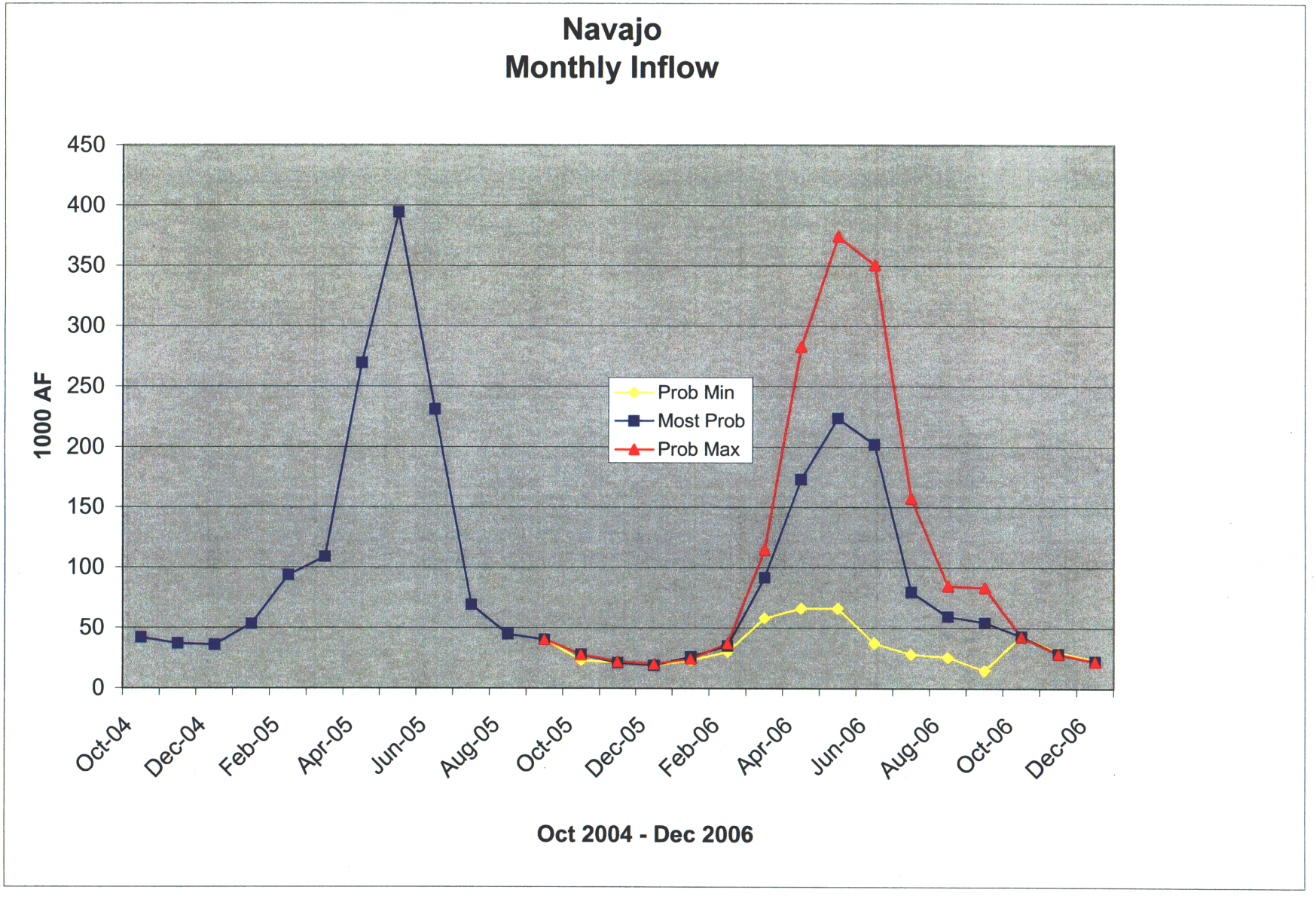
Oct-06
Dec-06
Oct 2004 - Dec 2006


Navajo
Monthly Inflow
1000 AF
450
400
350
300
250
200
150
100
50
0
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
Feb-05
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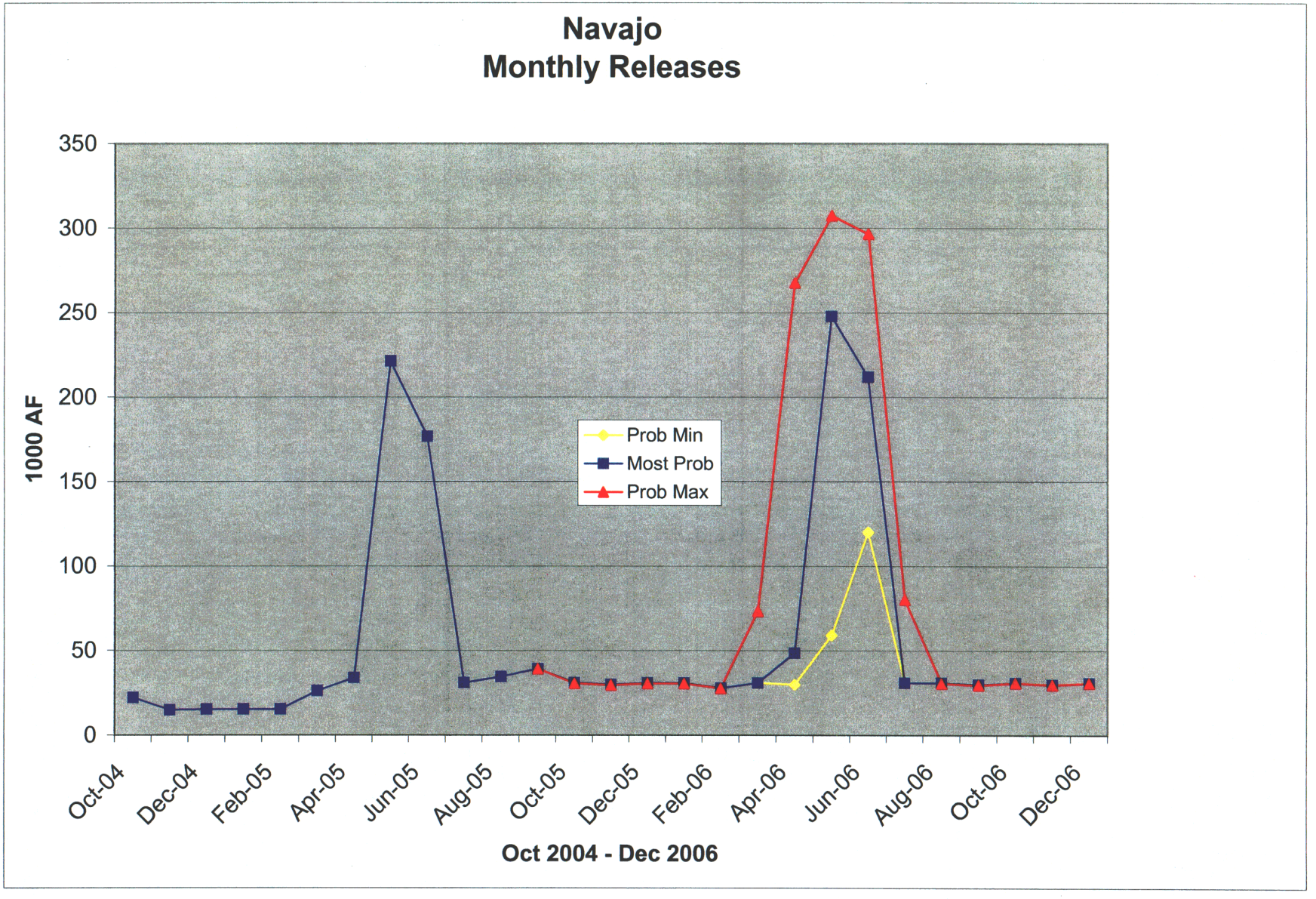
Oct-06
Dec-06
Oct 2004 - Dec 2006


Navajo
Monthly Releases
1000 AF
350
300
250
200
150
100
50
0
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
Feb-05
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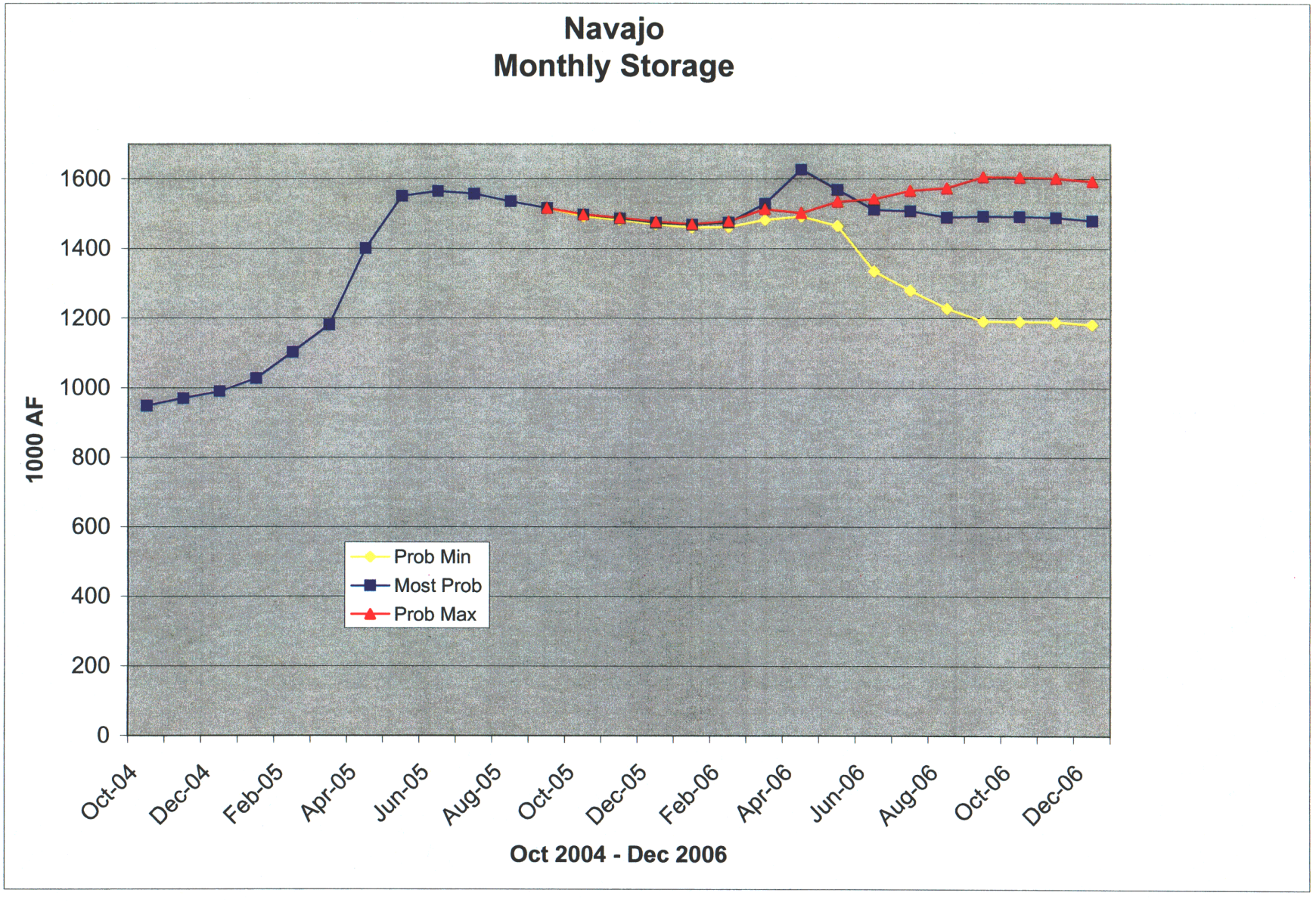
Oct-06
Dec-06
Oct 2004 - Dec 2006


Navajo
Monthly Storage
1000 AF
1600
1400
1200
1000
800
600
400
200
0
Prob Min
Most Prob
Prob Max
Oct-04
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Feb-05
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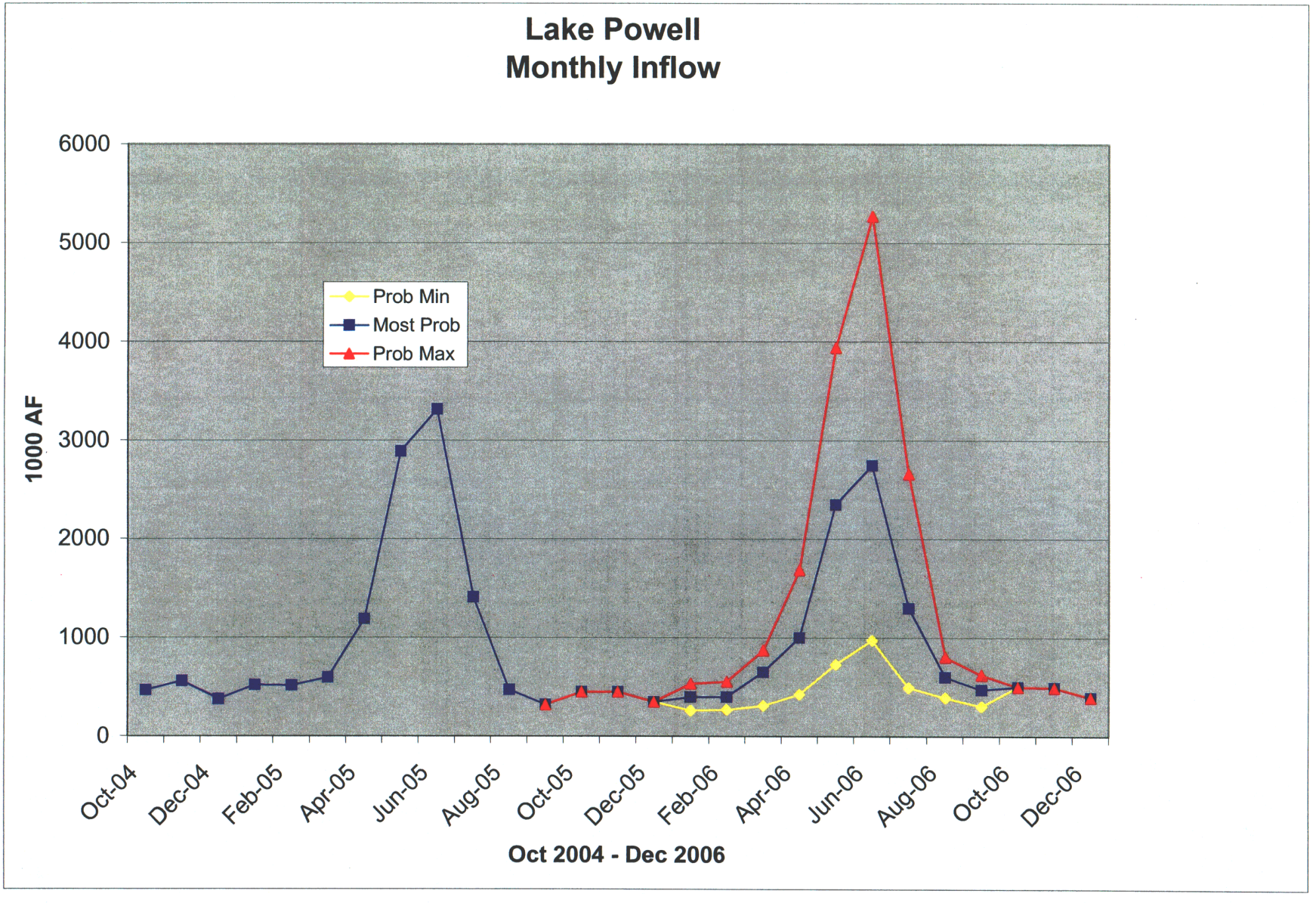
Oct-06
Dec-06
Oct 2004 - Dec 2006


Lake Powell
Monthly Inflow
6000
5000
4000
3000
2000
1000
0
1000 AF
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
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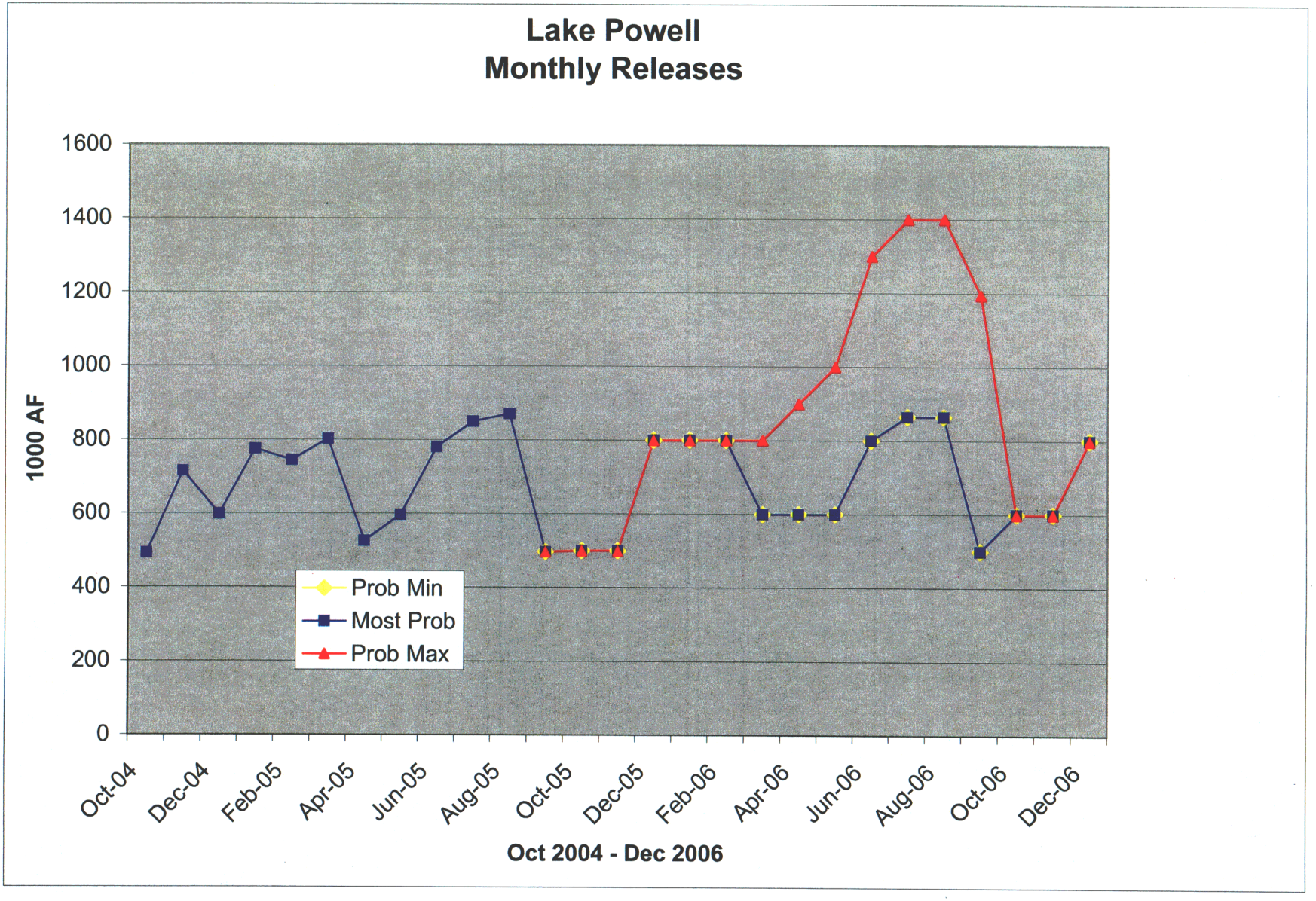
Oct-06
Dec-06
Oct 2004 - Dec 2006


Lake Powell
Monthly Releases
1000 AF
1600
1400
1200
1000
800
600
400
200
0
Prob Min
Most Prob
Prob Max
Oct-04
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Feb-05
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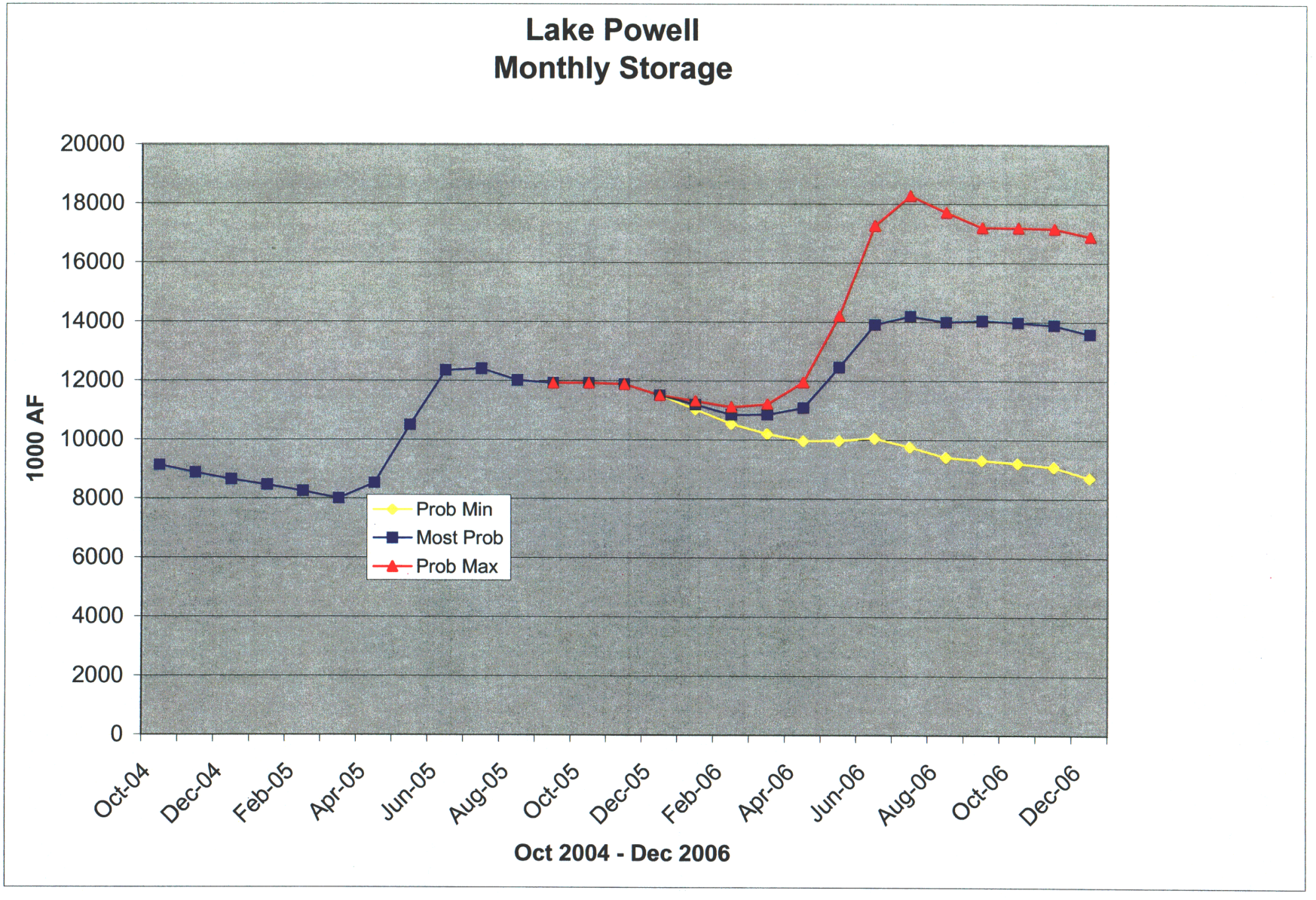
Dec-06
Oct 2004 - Dec 2006


Lake Powell
Monthly Storage
1000 AF
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18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Prob Min
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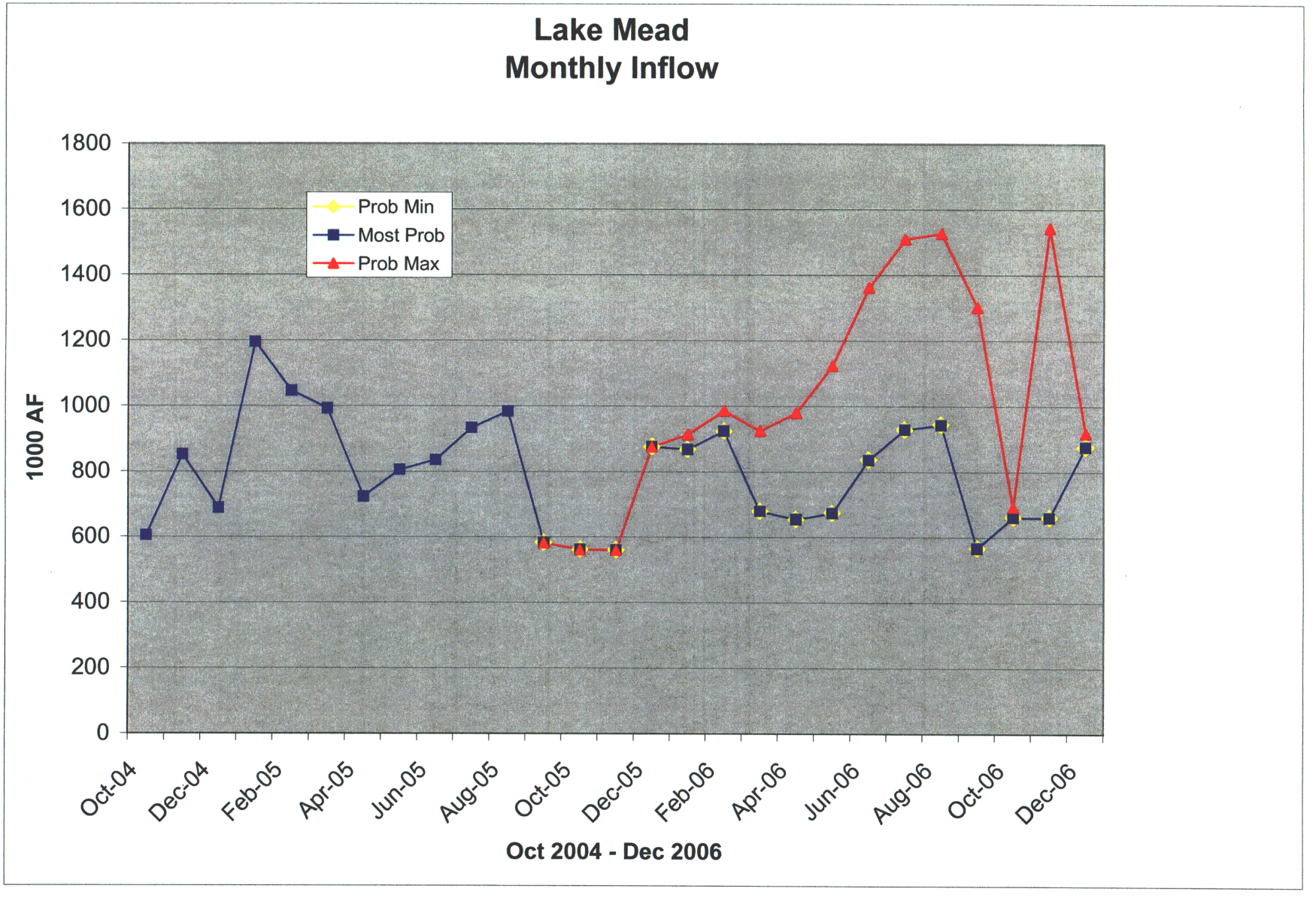
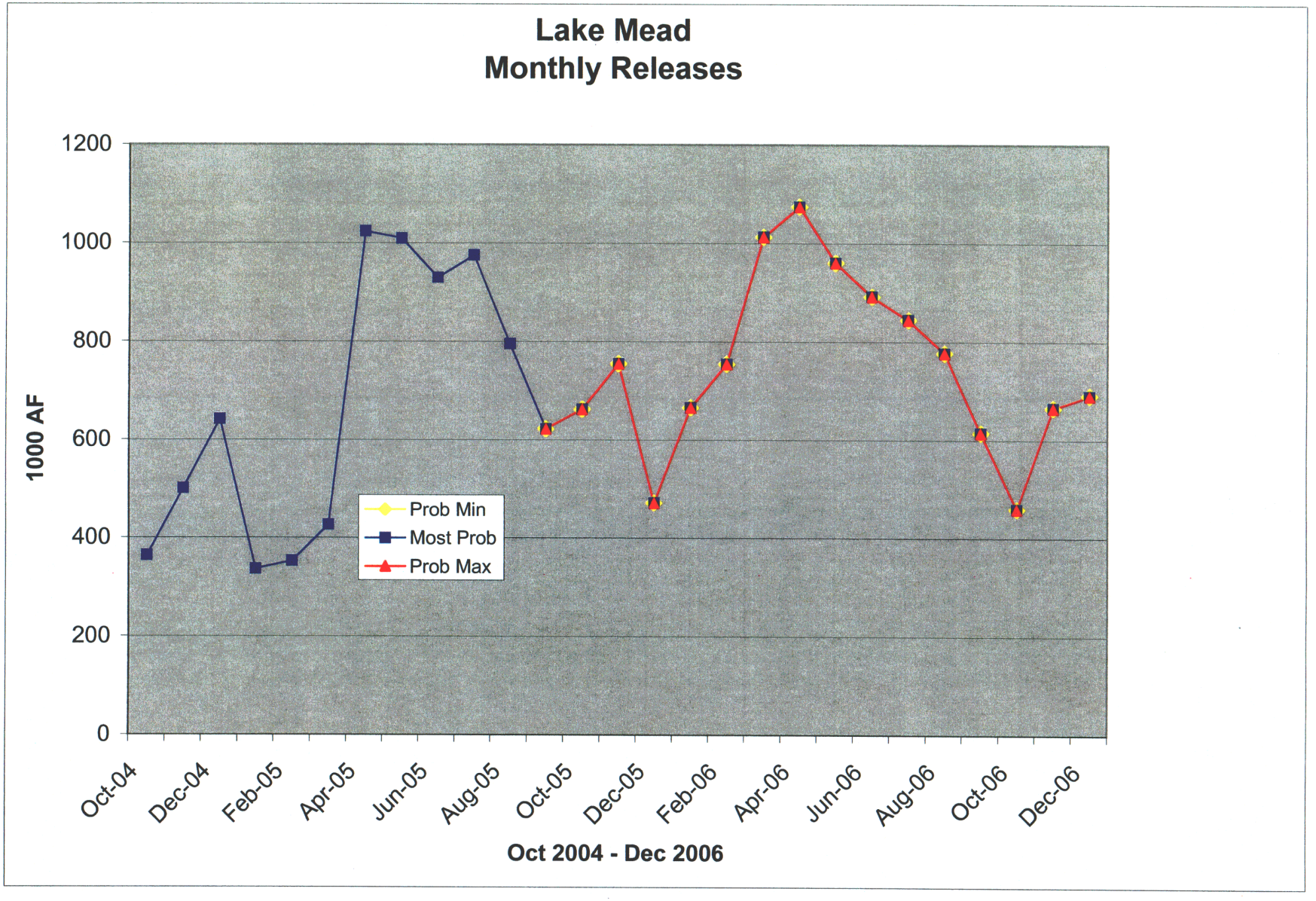
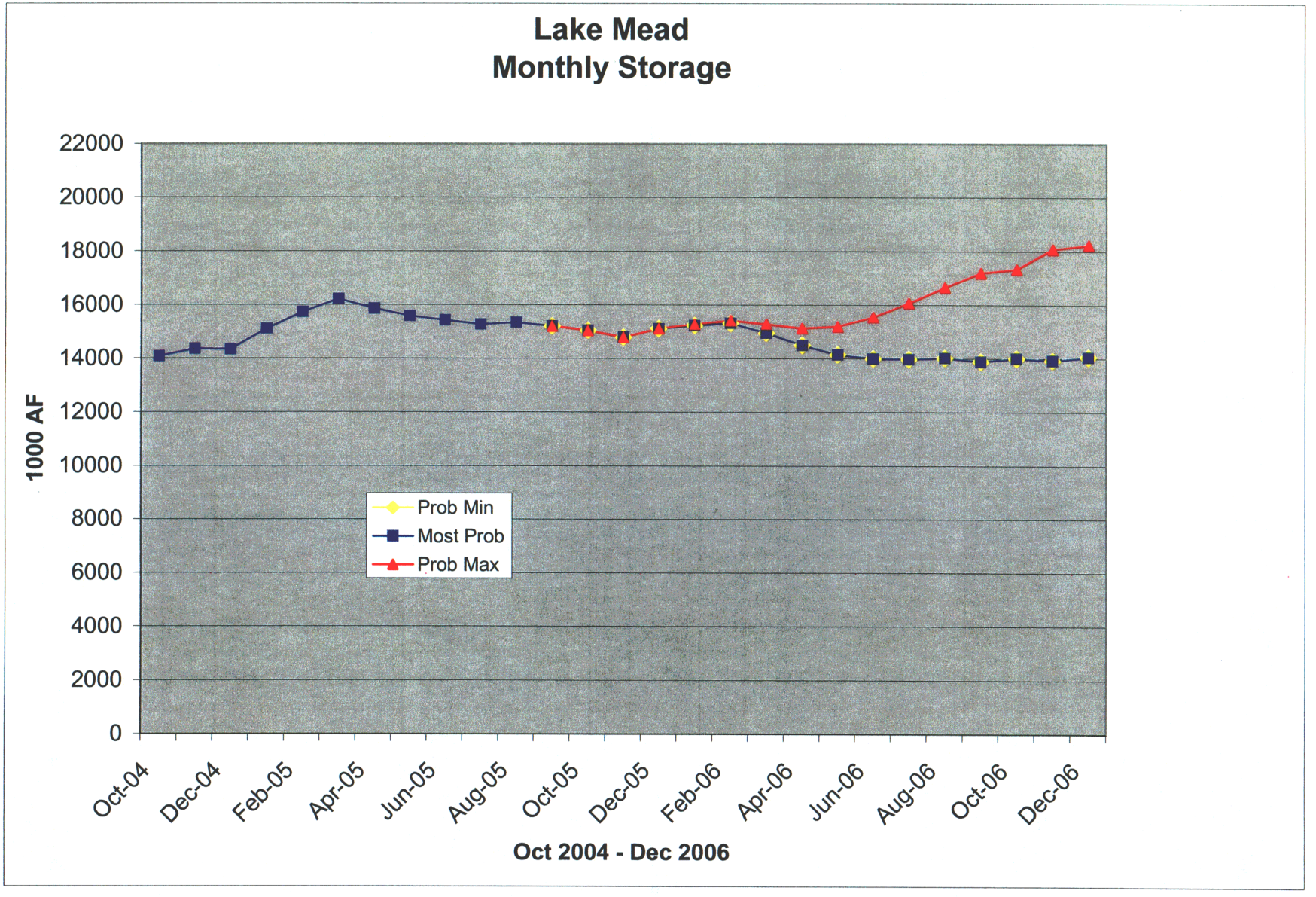
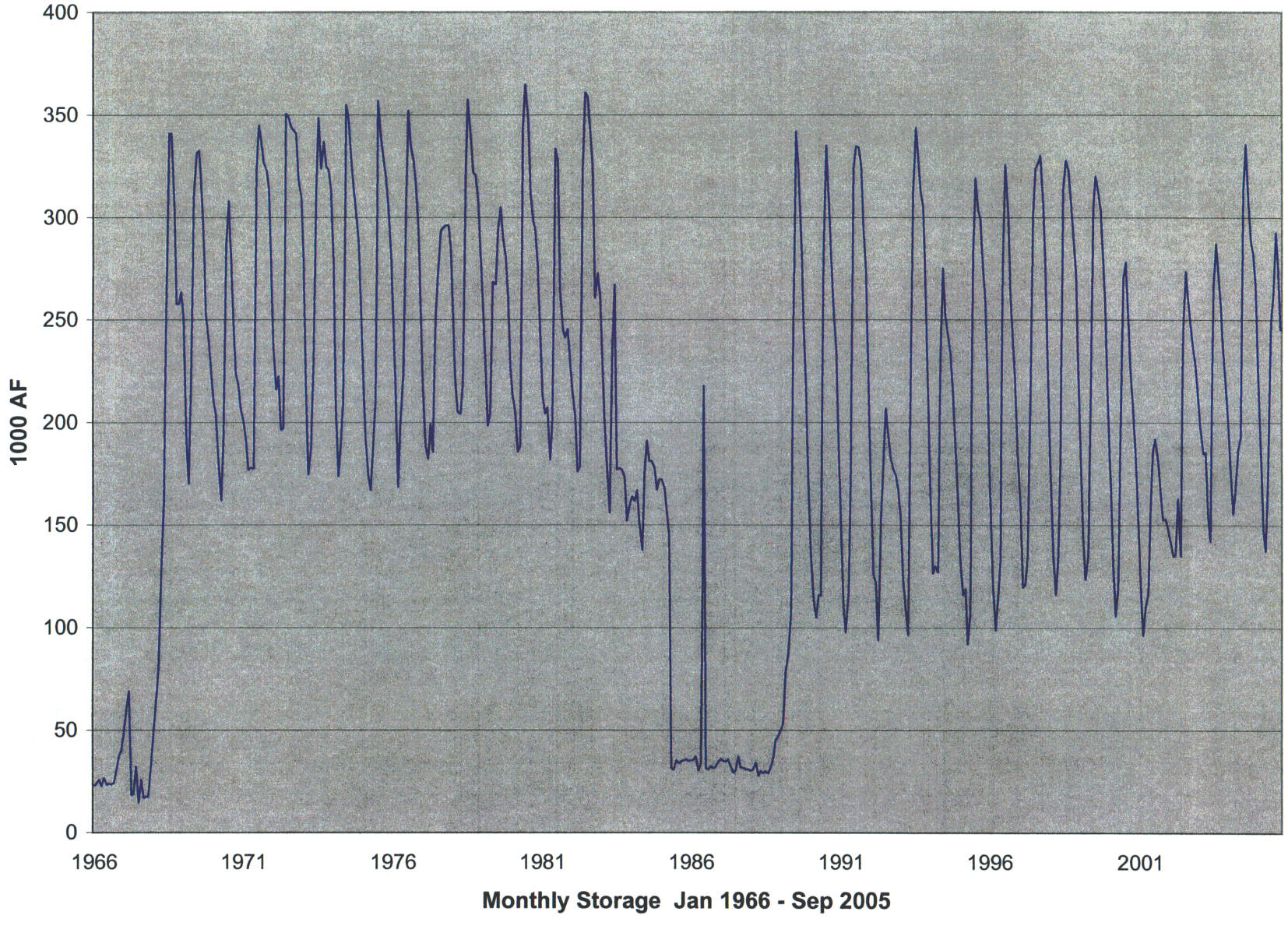
Prob Max
Oct-04
Dec-04
Feb-05
Apr-05
Jun-05
Aug-05
Oct-05
Dec-05
Feb-06
Apr-06
Jun-06
Aug-06
Oct-06
Dec-06
Oct 2004 - Dec 2006


Lake Mead
Monthly Inflow
1800
1600
1400
1200
1000
800
600
400
200
0
1000 AF
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
Feb-05
Apr-05
Jun-05
Aug-05
Oct-05
Dec-05
Feb-06
Apr-06
Jun-06
Aug-06
Oct-06
Dec-06
Oct 2004 - Dec 2006

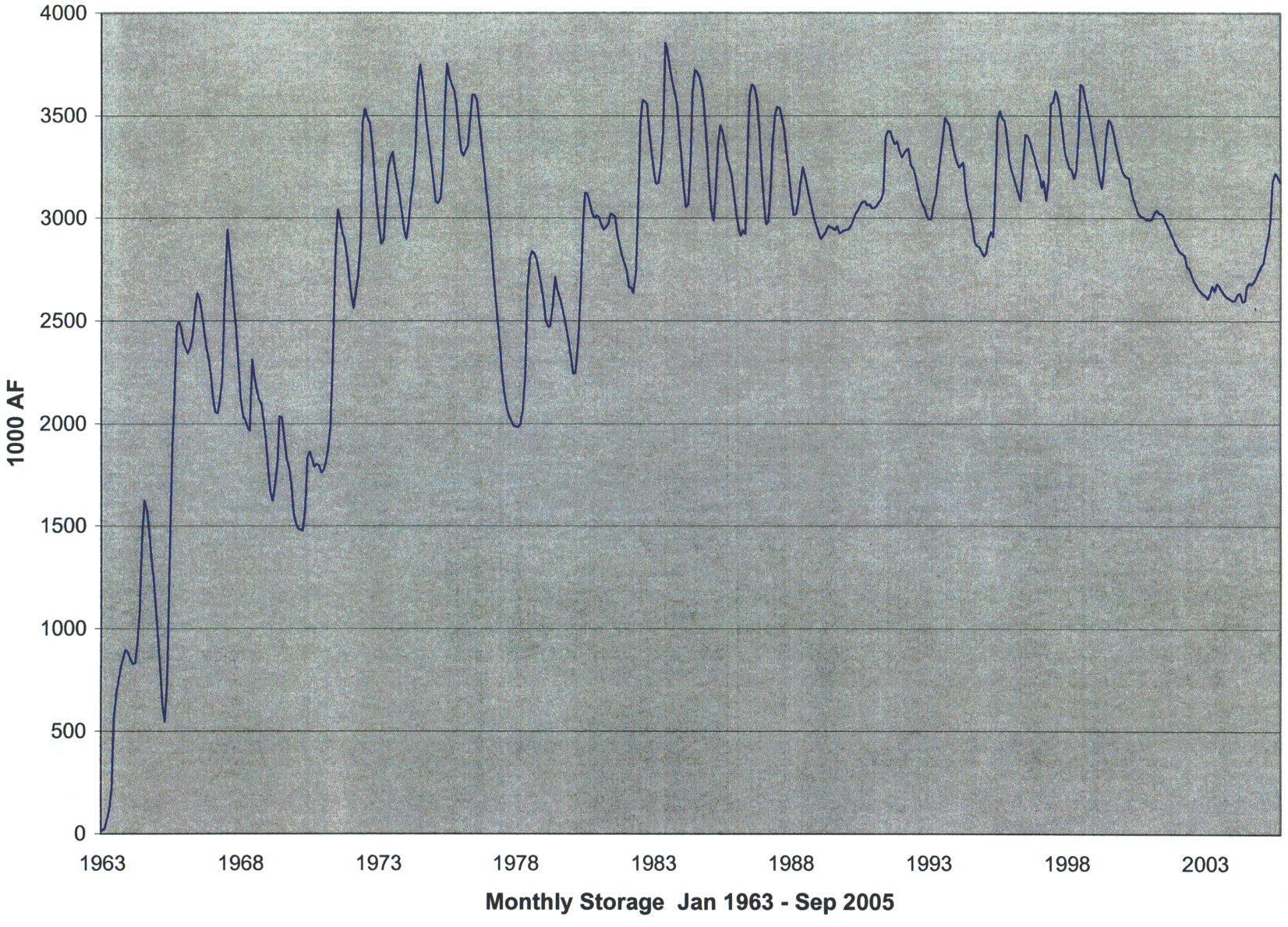

Lake Mead
Monthly Releases
1000 AF
1200
1000
800
600
400
200
0
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
Feb-05
Apr-05
Jun-05
Aug-05
Oct-05
Dec-05
Feb-06
Apr-06
Jun-06
Aug-06
Oct-06
Dec-06
Oct 2004 - Dec 2006


Lake Mead
Monthly Storage
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
1000 AF
Prob Min
Most Prob
Prob Max
Oct-04
Dec-04
Feb-05
Apr-05
Jun-05
Aug-05
Oct-05
Dec-05
Feb-06
Apr-06
Jun-06
Aug-06
Oct-06
Dec-06
Oct 2004 - Dec 2006

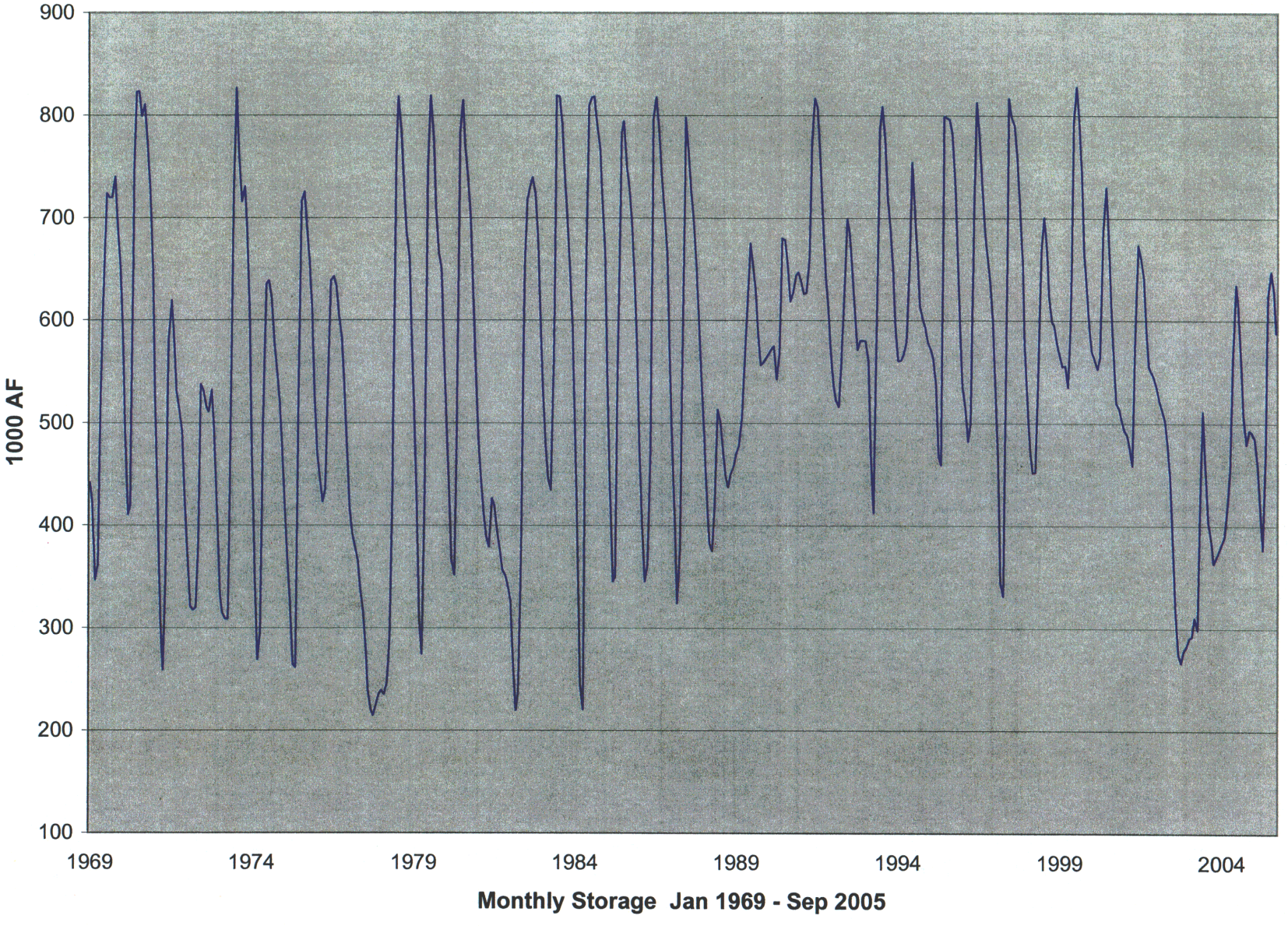
Fontenelle


400
350
300
250
200
150
100
50
0
1000 AF
1966
1971
1976
1981
1986
1991
1996
2001
Monthly Storage Jan 1966 - Sep 2005

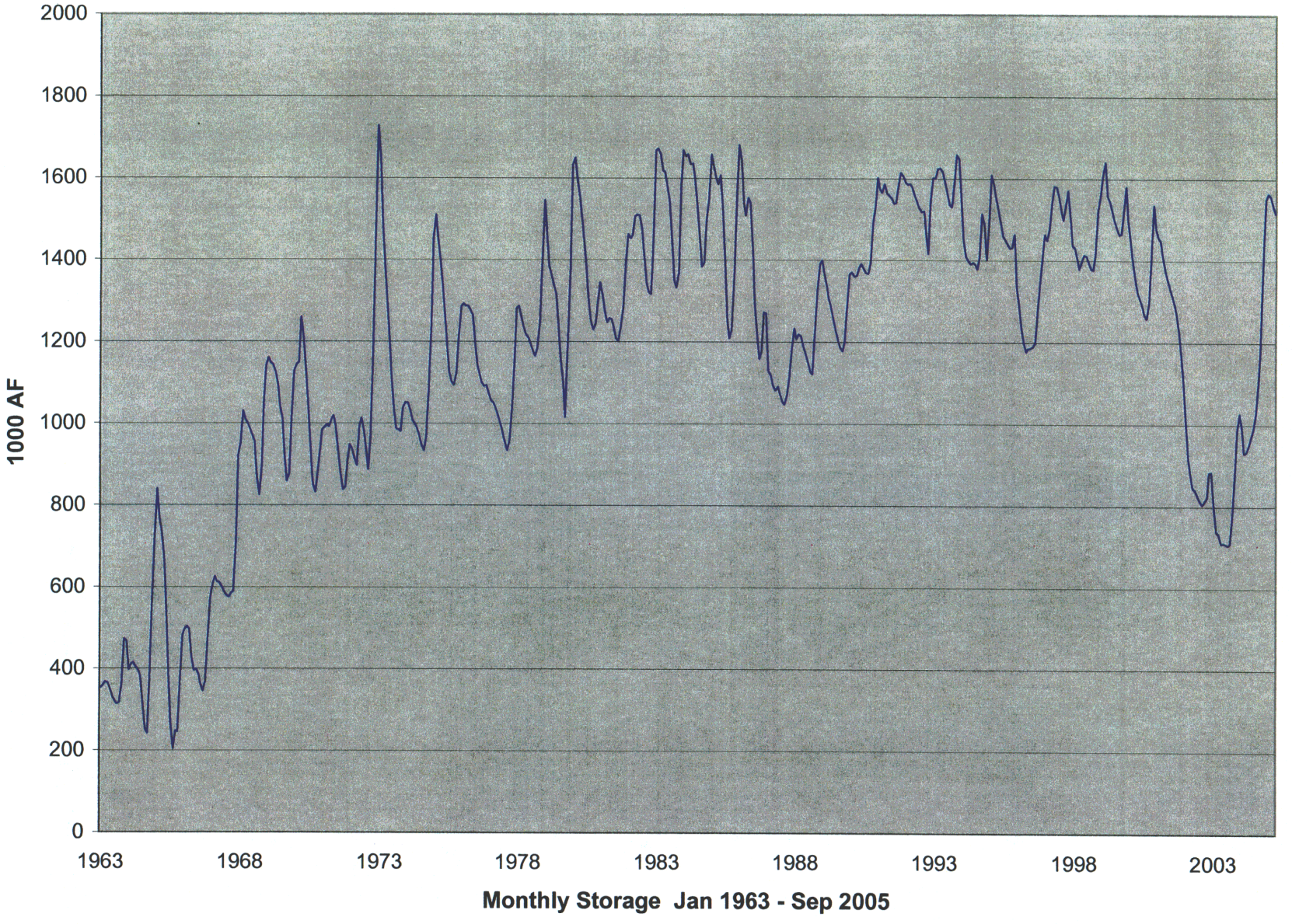
Flaming Gorge



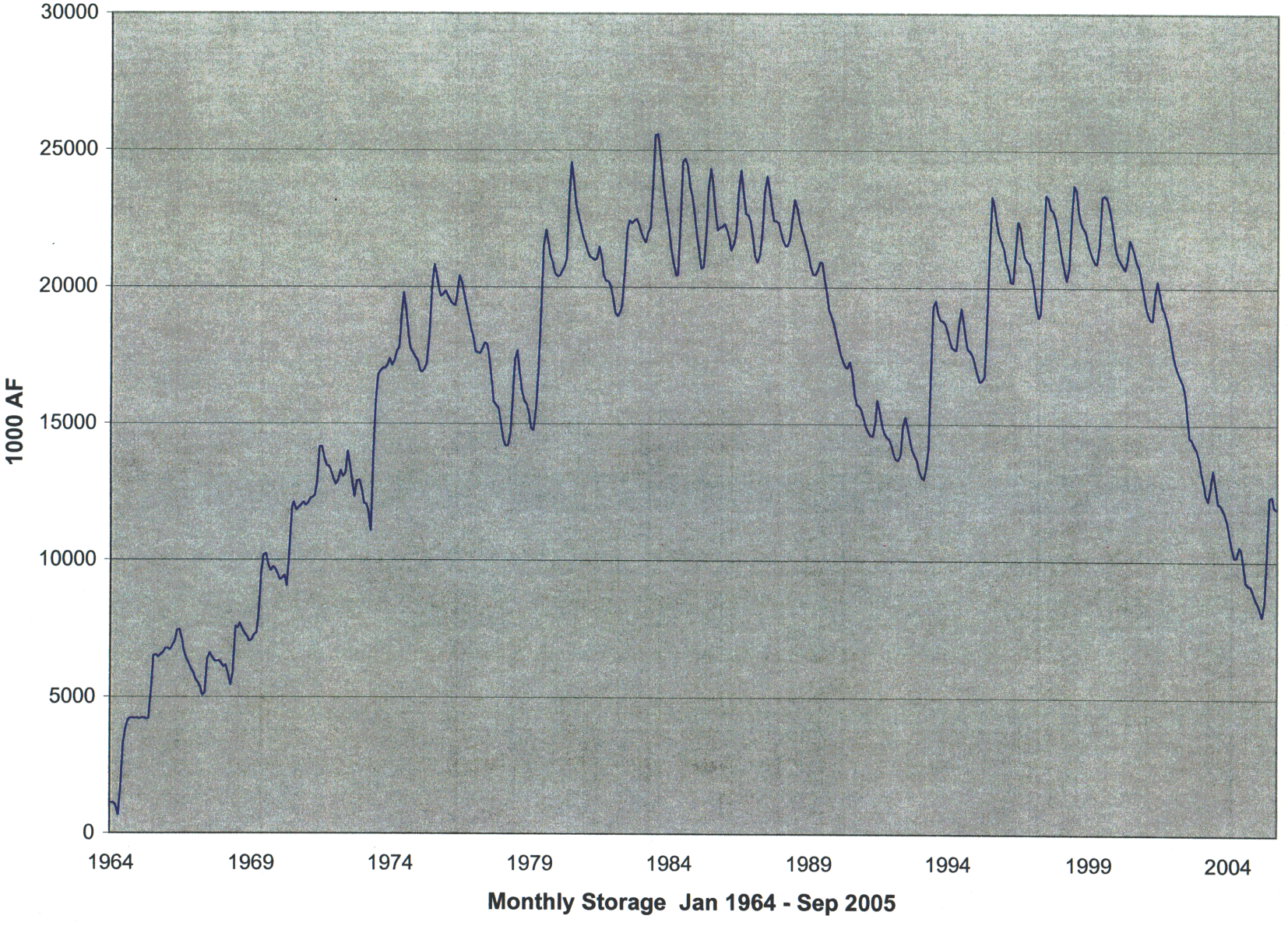
Blue Mesa


900
800
700
600
500
400
300
200
100
1000 AF
1969
1974
1979
1984
1989
1994
1999
2004
Monthly Storage Jan 1969 - Sep 2005

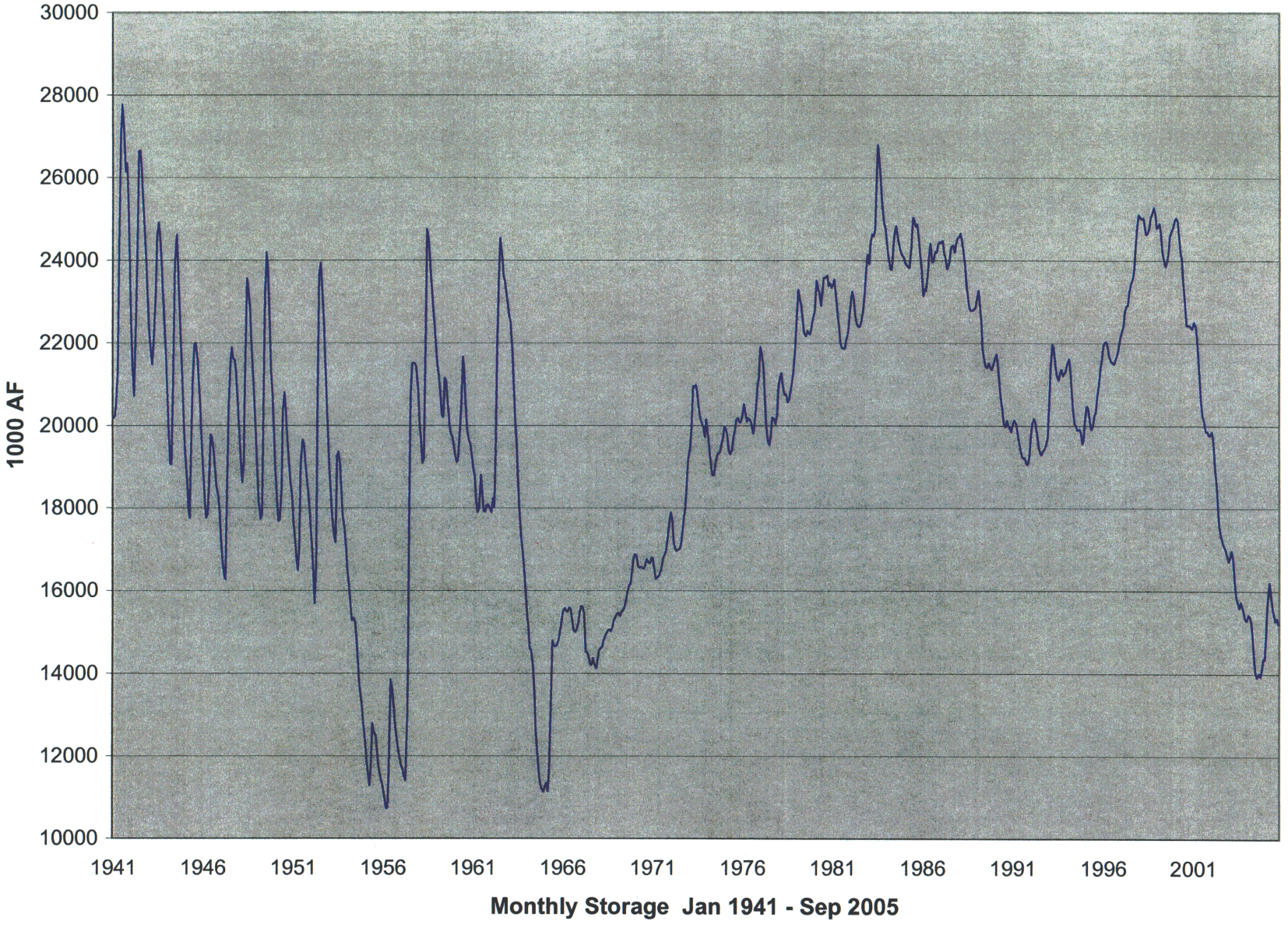
Navajo


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 2005

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 2005

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
Monthly Storage Jan 1941 - Sep 2005