Lower American River

Rationale, Objectives, and Assessment Methodology for Water and Power Resources for the Modified Flow Management Standard

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Prepared By

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LOWER AMERICAN RIVER
FLOW MANAGEMENT STANDARD

MODIFIED FLOW MANAGEMENT STANDARD RATIONALE, OBJECTIVES, AND ASSESSMENT METHODOLOGY FOR WATER AND POWER RESOURCES

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List of Acronyms

2006 FMS	2006 Lower American River Flow Management Standard
AF	acre-feet
ARI	American River Index
B120	Bulletin 120, Water Conditions in California
CDEC	California Data Exchange Center
cfs	cubic feet per second
CVP	Central Valley Project
D1641	Decision 1641
Delta	Sacramento-San Joaquin River Delta
DWR	California Department of Water Resources
EOD	End-of-December
EOM	End-of-May
Lower American River	American River below Nimbus Dam
M&I	Municipal and Industrial
Modified FMS	Modified Lower American River Flow Management Standard
MRR	Minimum Release Requirement
PCWA	Placer County Water Agency
RDPA	redd dewatering protective adjustments
Reclamation	U.S. Department of Interior, Bureau of Reclamation
SRI	Sacramento River Index
SWP	State Water Project
SWRCB	California State Water Resource Control Board
TAF	thousand acre-feet
TCD	Temperature Control Device
UIFR	Unimpaired Inflow to Folsom Reservoir
Water Forum	Sacramento Water Forum
Western	Western Area Power Administration

1 INTRODUCTION

This document provides a description of the hydrological objectives and the hydrological rationale for the Sacramento River Water Forum's (Water Forum) Modified Flow Management Standard (Modified FMS). For a complete description of the Modified FMS, see Technical Memorandum 1, *Project Description of the Lower American River Modified Flow Management Standard*.

1.1 BACKGROUND

Folsom Dam and Reservoir are owned and operated by the U.S. Department of Interior, Bureau of Reclamation (Reclamation) as part of the Central Valley Project (CVP). Other key CVP facilities include Shasta Dam and Reservoir, the C.W. "Bill" Jones Pumping Plant in the Delta, San Luis Reservoir, the William R. Gianelli Powerplant, the San Luis Canal, and the Delta Mendota Canal.

1.2 WATER SUPPLY

Folsom Reservoir and the American River provides water supply to the Sacramento region. Water users in the region are generally municipal and industrial (M&I) users. Water users take water from upstream of Folsom Reservoir, from Folsom Reservoir itself, and from the American River below Nimbus Dam (lower American). Placer County Water Agency's (PCWA) diversions from the American River Pump Station were included in this analysis. Other water use upstream of Folsom Reservoir was not evaluated. Water users in the region rely on both surface and groundwater water supplies, but this analysis focuses on surface water supplies. A significant portion of the American River region's water supplies are diverted from Folsom Reservoir through its M&I intake; surface vortexing at the M&I intake is believed to start when the reservoir's storage drops to around 89,000 acre-feet (AF), potentially entraining air and creating cavitation in the existing pumping plant. To avoid damage to the plant, the M&I intake becomes unusable when storage drops too low, even if the intake is submerged..

1.2.1 Water Forum Dry Year Procedures

The Water Forum Agreement[1] includes dry-year procedures, which state that member water suppliers would reduce surface-water deliveries during dry periods. These reductions are shown graphically in Figure 1.2-1. Diversion volumes are based on the March-November unimpaired inflow to Folsom Reservoir (UIFR), which is the sum of the March-September unimpaired flow from California Department of Water Resources (DWR) *Bulletin 120, Water Conditions in California* (B120), plus 60 thousand acre-feet (TAF) to represent unimpaired inflow in October and November.

[1] The Water Forum Agreement can be found at http://www.waterforum.org/stakeholders/agreement

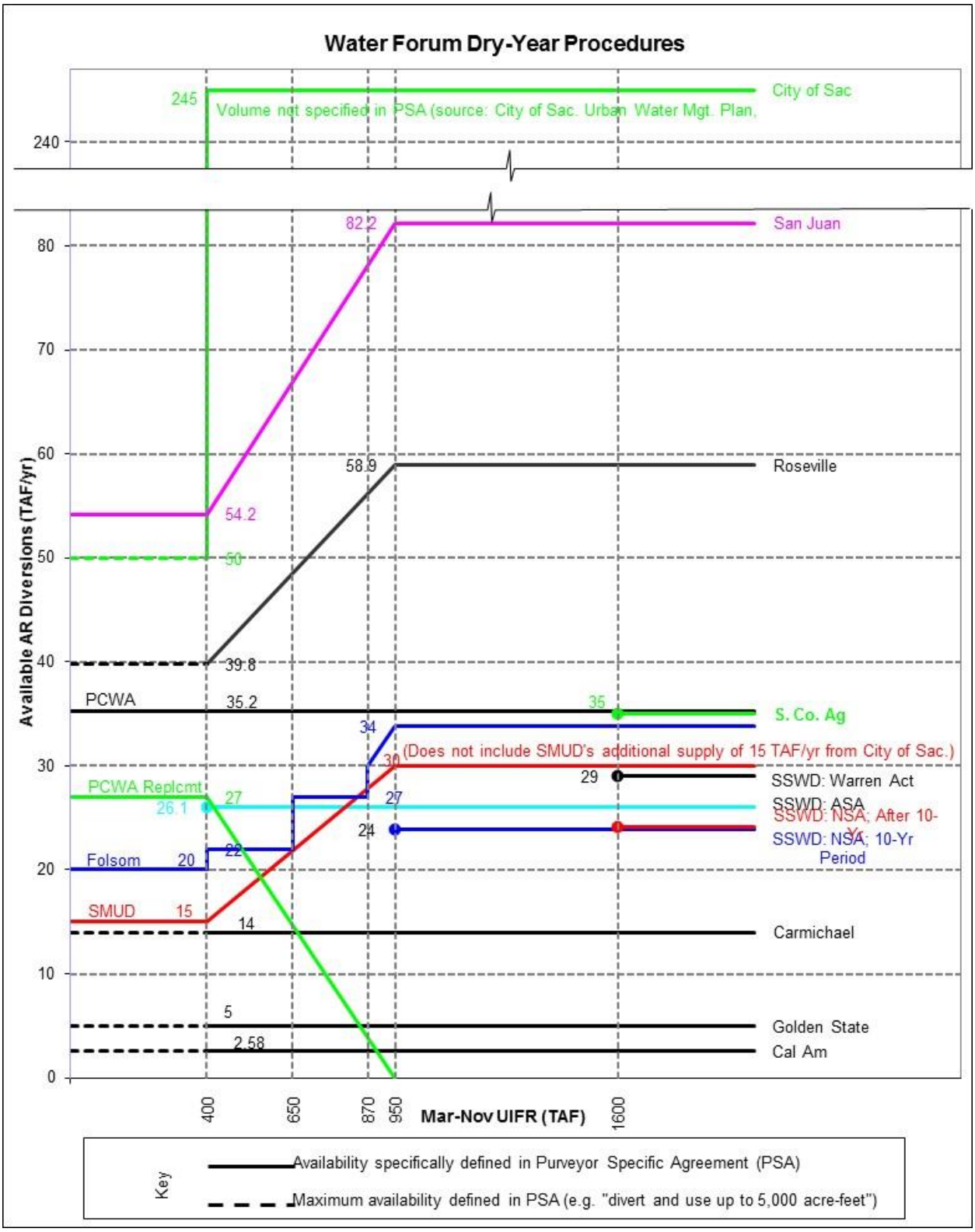


Figure 1.2-1. Water Forum Dry Year Procedures

Figure 1.2-2 shows the exceedance probability of the UIFR as used in evaluation of the Modified FMS, and the critical UIFR values for Dry-Year Procedure diversion changes.

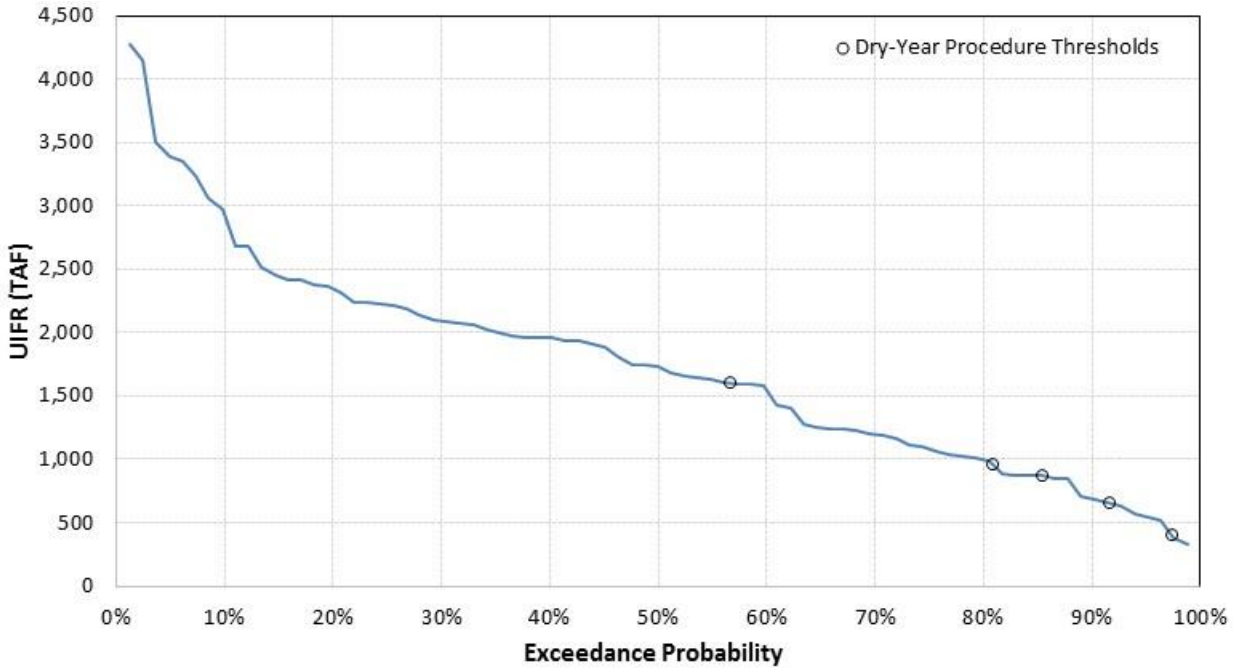


Figure 1.2-2. Exceedance Probability of UIFR Volumes

1.3 HYDROPOWER

The Folsom Powerplant sits at the base of Folsom Dam, and receives water through three penstocks each with a temperature control device (TCD) in the reservoir. The plant has three Francis turbine units with a combined maximum generating capacity of 210 megawatt (MW) (USBR 2017a). Energy generated at the plant primarily supplies long-term contracts with the Western Area Power Administration (Western). The plant operates to provide both energy and ancillary services (spinning reserve, non-spinning reserve, replacement reserve, regulation, black start, and voltage support). Maximum flow capacity through the powerplant is approximately 8,300 cfs. Releases through the plant are often curtailed in the fall to reduce the water temperature of releases by making releases from a lower-elevation outlet in the dam. These power bypasses are typically made to improve water temperatures in the lower American River for the benefit of anadromous fish spawning, incubating, or rearing in the river.

The Nimbus Powerplant, at the base of Nimbus Dam, operates to provide consistent flows to the lower American River, using Lake Natoma to re-regulate flows from the Folsom Powerplant. The Nimbus Powerplant has two 6.75 MW Kaplan units for a combined 13.5 MW (USBR 2017a). However, the maximum operational capacity is limited to 12 MW due to head. Maximum flow capacity through the powerplant is approximately 5,000 cfs (USBR 2017a).

2 ASSESSMENT METHODOLOGY

Modeling for the Modified FMS was primarily conducted using four models. Hydrologic modeling was conducted using DWR and Reclamation's CalSim II model, Sacramento River water temperatures were simulated using Reclamation's Sacramento River Water Temperature Model, American River water temperatures were simulated using PCWA's American River Water Temperature Model, and CVP and SWP hydropower was simulated using DWR and Reclamation's LTGen and SWPGen. This section provides a description of each.

2.1 WATER SUPPLY

Simulation of water supply, reservoir storage, and river flows was completed using DWR and Reclamation's CalSim II model. For a complete description of the Water Forum's CalSim II modeling, see Technical Memorandum 2, *Lower American River Flow Management Standard Technical Memorandum - CalSim II Assumptions*. Selected results from the CalSim II modeling are presented below in Section 4.

2.2 SACRAMENTO RIVER WATER TEMPERATURES

Sacramento River water temperatures were simulated using Reclamation's Sacramento River Water Temperature Model (SRWTM), as developed to support Reclamation's Coordinated Long-Term Operation of the Central Valley Project and State Water Project Final Environmental Impact Statement (Long-Term Operations FEIS). For a complete description of the Water Forum's use of the SRWTM, see Technical Memorandum 3, *Lower American River Flow Management Standard Technical Memorandum - Sacramento River Water Temperature Model Assumptions*. Selected results from the SRWTM modeling are presented in Section 4.

2.3 AMERICAN RIVER WATER TEMPERATURES

American River water temperatures were simulated using PCWA's Folsom Reservoir CE-QUAL-W2 Temperature Model and Lake Natoma CE-QUAL-W2 Model. For a complete description of the Water Forum's use of PCWA's water temperature models and associated inputs, see the following technical memoranda:

- Technical Memorandum 4 – *Folsom Reservoir Inflow Water Temperature Relationships;*
- Technical Memorandum 5- *Folsom Reservoir CE-QUAL-W2 Temperature Model;*
- Technical Memorandum 6 – *Lake Natoma CE-QUAL-W2 Temperature Model;*
- Technical Memorandum 7 - *Folsom Reservoir Inflow and Upstream Reservoir Storage for the 1922-2003 Period of Record;*
- Technical Memorandum 8 - *Historical 1922-2003 Meteorological Dataset;*
- Technical Memorandum 9- *Lower American River Water Temperature Regression Relationships*.

2.4 HYDROPOWER

Though both the CVP and SWP are multipurpose projects, water deliveries are these projects' primary consideration, while power generation is, for the most part, an ancillary consideration. Because water deliveries are the main emphasis in the planning models, power is not considered in the water balance calculations made within CalSim II. However, output variables produced by CalSim II are adequate for estimating many power-generation statistics.

2.4.1 LT Generation

Because CalSim II was developed without a power module, the Western Area Power Authority (Western) decided to develop a tool to evaluate the effect of alternative CVP and SWP water operations on the production and use of CVP power. Western recognized that with facility specifications at power and pumping plants, CalSim II output data could be post-processed to calculate monthly values for average capacity and energy production at each power plant as well as monthly average capacity and energy use at each pumping plant.

The CalSim II output data post-processor developed by Western and Reclamation that performs these tasks is a Microsoft Excel–based spreadsheet tool called LTGen. Because CalSim II is a long-term planning model, the LT stands for long-term, and the Gen refers to generation. Over the past 10 years, the spreadsheet has undergone updates that reflect both facility upgrades and revised calculation procedures. These updates have been implemented by Western, Reclamation, and consultants using the tool and are noted within the spreadsheet. Documentation on the use of the tool is contained in the spreadsheet. LTGen is the standard tool for post-processing power effects of CVP operations from CalSim II simulations.

2.4.2 SWP Power

LTGen was developed solely for CVP facilities. The SWP power operators have a similar need for their power-consuming and -generating facilities as Western, so another post-processor was developed for the SWP. This post-processor, which is a Microsoft Excel spreadsheet, was developed by DWR and is called State Water Project Generation (SWPGen). Like LTGen, over the past 10 years, SWPGen has been updated to reflect both facility upgrades and revised calculation procedures. These updates have been implemented by DWR and consultants using the tool and are noted in the spreadsheet. No documentation on the use of the tool is available; however, it is fairly clear on the 'control' page what inputs are required, and the tool is similar to LTGen in its construction and output. SWPGen is the standard tool for post-processing power effects of SWP operations from CalSim II simulations.

3 OBJECTIVES AND RATIONALE

The Modified FMS is comprised of the following major elements: (1) hydrologic indices; (2) a family of minimum release requirement (MRR) curves; (3) an end-of-May reservoir storage requirement; (4) an end-of-December storage requirement; (5) redd dewatering protective adjustments; and (6) a spring pulse flow event. These elements interrelate with elements of the Modified FMS's predecessor, the 2006 lower American River Flow Management Standard that Reclamation currently implements (2006 FMS), that have been retained. Technical Memorandum 1, *Project Description of the Lower American River Modified Flow Management Standard*, explains the relationship between the new and retained elements.

Several of the elements, particularly the MRR curves and end-of-December storage requirements, were developed based on an iterative process, in which CalSim II results and SRWTM water temperatures for the 2006 FMS and each Modified FMS iteration were compared to ensure that the Water Forum's objectives were met. If an iteration of the Modified FMS failed to meet the Water Forum's objectives, elements of the Modified FMS were changed to achieve an appropriate balance of effects. The following sections describe the hydrological/operations-related objectives and rationale for each of the elements of the Modified FMS. For a detailed description of the biological rationale for each of these objectives, please see the *Biological Rationale, Development and Performance of the Modified Flow Management Standard*.

3.1 HYDROLOGICAL INDICES

The Modified FMS uses two hydrological indices to determine the MRR from Nimbus Dam. Those two indices, and the rationale for their inclusion, are described below.

3.1.1 Sacramento River Index

The Sacramento River Index (SRI), published by DWR at the start of each month from December through May, is a forecast of total water year unimpaired flow volume from the Sacramento River above Bend Bridge, Feather River at Oroville, Yuba River near Smartsville, and the American River below Folsom. Forecasted 99%, 90%, 75%, 50%, 25%, and 10% exceedance probability volumes are computed for each forecast. The 2006 FMS used the SRI to determine January and February minimum release requirements; the SRI has been retained for use under the Modified FMS for determining the January MRR.

The SRI is the first official forecast of water year unimpaired flow from DWR each year. In January, the SRI does not have the influence of snow pack measurements, so the forecast is produced based on two factors (DWR 2017a):

1) Precipitation data for the water year from six precipitation gages in each of the four Sacramento Valley watersheds described above.

2) Antecedent basin conditions, represented by basin runoff for each watershed from the two previous years.

The Water Forum selected the 75% exceedance probability forecast for use in determining the January MRR. While the 50% forecast would provide the most unbiased forecast of the six available, the Water Forum determined that it was more important to favor a drier forecast early in the year. If actual conditions were to be wetter than expected, the minimum flow could go up in future months. If actual conditions were drier than expected, reducing the minimum flow could have both biological (i.e., dewatering redds or stranding juveniles) and water supply (i.e., once water is released, it cannot be returned to storage) implications. The 90% and 99% forecasts, while highly protective of both biological and water supply interests, were deemed overly conservative for purposes of the Modified FMS.

Figure 3.1-1 shows the exceedance probability of the SRI and SRI values corresponding to changes in the MRR curves, as further described in Section 3.2.1.

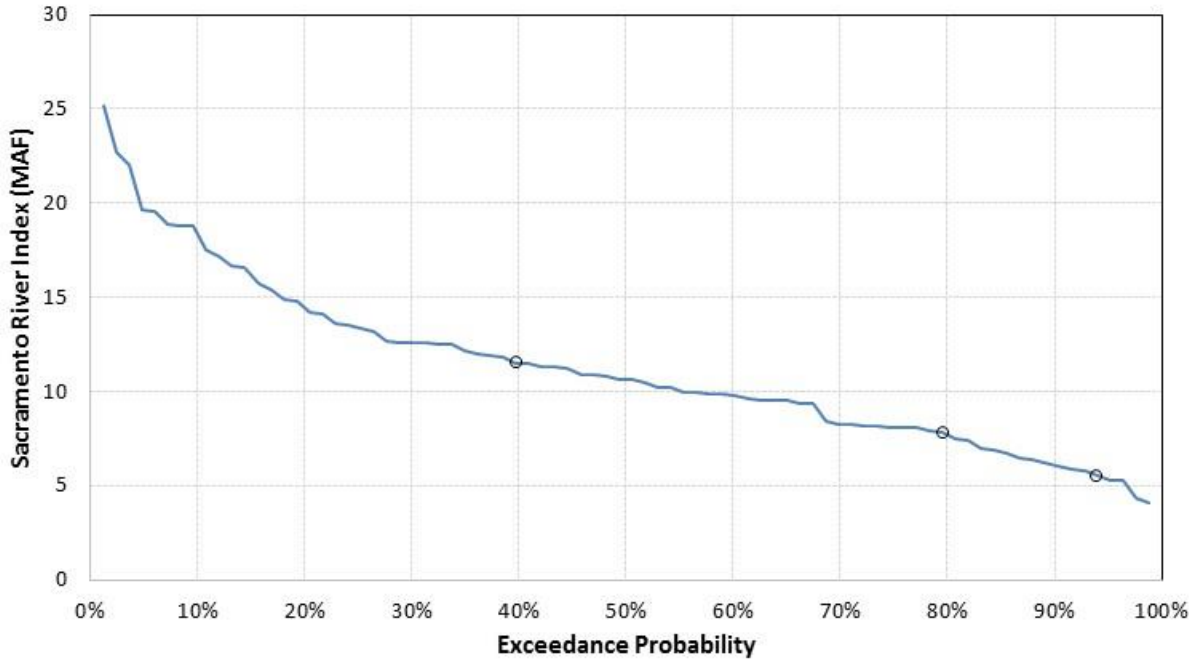


Figure 3.1-1. Sacramento River Index

3.1.2 American River Index

To determine the February through December MRRs, the Water Forum wanted to use a water supply index that was publicly available, published each year, updated monthly, and that would reflect the overall water availability of the American River watershed. After considering other available indices, the Water Forum developed the American River Index (ARI), based on the B120 unimpaired water year forecasts.

The ARI is a measure of the unimpaired inflow to Folsom Reservoir minus the amount of "spill" water that could not be captured at Folsom Reservoir (unimpaired runoff minus spill flows). The ARI is based on the B120 forecasted unimpaired American River flow at Folsom for the water

year, published on February 1, March 1, April 1, and May 1 . The B120 forecasts are based on snowpack water content surveys and assume future median meteorological conditions.

Since the intent of the ARI is to represent available water for Folsom Reservoir, flood releases for the water year prior to the B120 publication are subtracted from the water year forecast; winter and spring storage is typically restricted by the flood reservation space, and any water that is released for flood management purposes is not available for use in meeting either water supply or flow requirements. Figure 3.1-2 shows a comparison of historical water year Folsom Reservoir inflow volumes, with and without flood releases.[2]

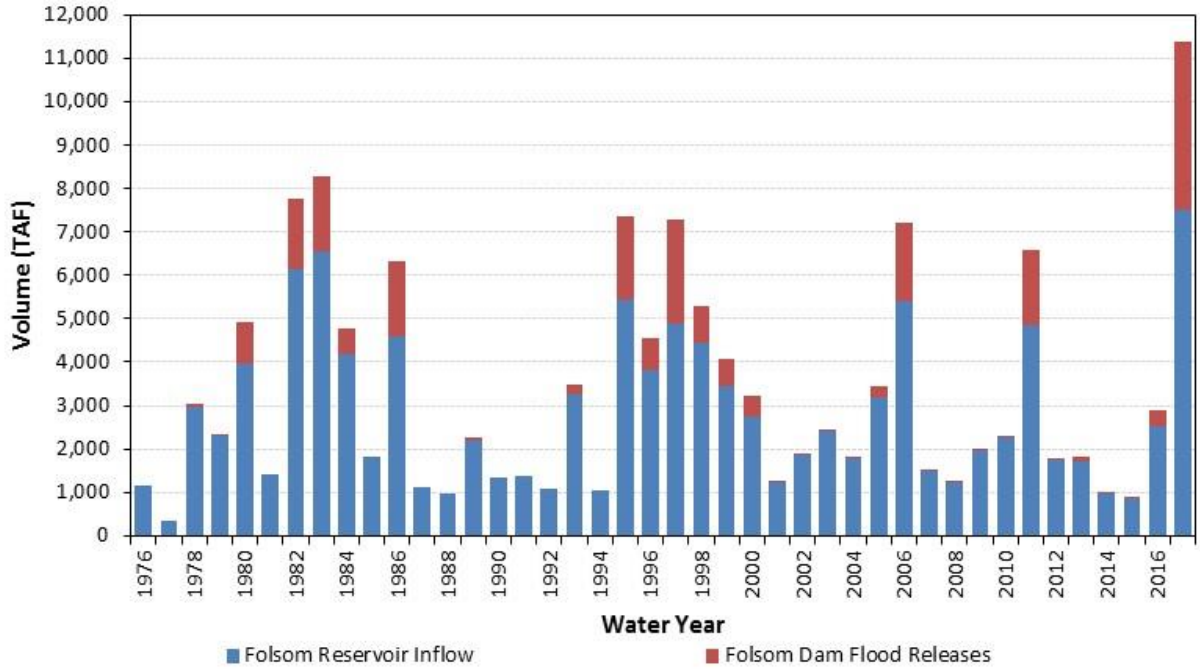


Figure 3.1-2. Historical Water Year Inflow and Flood Releases from Folsom Reservoir

Since the ARI has not been historically computed, there is no record for historical ARI values. However, historical annual unimpaired American River flow volumes at Folsom (DWR 2017b) provide a reasonable representation of the approximate historical distribution of ARI values. Figure 3.1-3 shows the exceedance probability of historical annual unimpaired flow for the American River at Folsom. Critical ARI inflection points, corresponding to changes in MRR as described below in Section 3.2, are included on the figure as well.

[2] Since Reclamation occasionally makes releases from the flood control outlets for water temperature management in October and November, historical flood releases in this figure are defined as releases from the spillway or flood control outlets after December 1.

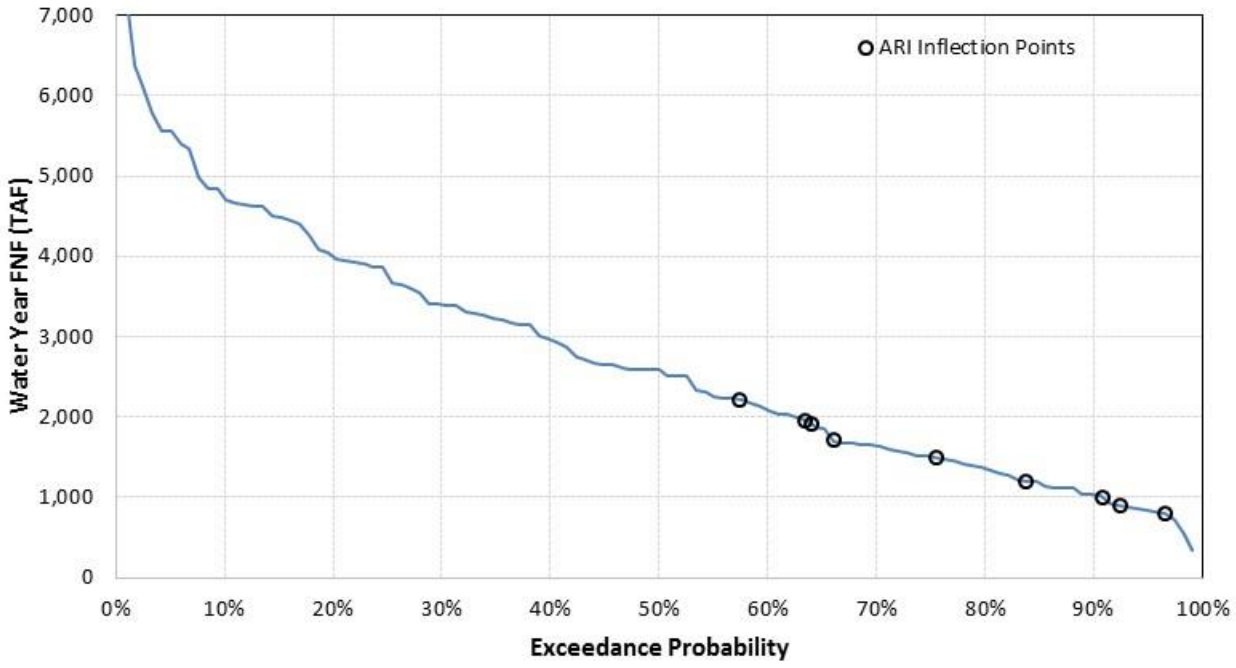


Figure 3.1-3. Historical Unimpaired American River Flow at Folsom (Water Years 1901-2017)

3.2 MINIMUM RELEASE REQUIREMENTS

As indicated above, the two hydrologic indices are used to compute the MRR from Nimbus Dam. Also as described above, the MRR curves were developed through iteration; while the target flows were identified based on biological effects, as described in the *Biological Rationale, Development and Performance of the Modified Flow Management Standard*, the index values corresponding to those flows were refined to balance the effects of the Modified FMS, primarily between Folsom Reservoir storage, lower American River flows and water temperatures, Shasta Reservoir cold water pool volume, and Sacramento River flows and water temperatures. The MRR curves for each period of the year are described below.

3.2.1 January

As described above, determination of the January MRR uses the 75% exceedance January 1 SRI forecast value. Figure 3.2-1 shows the January MRR curve.

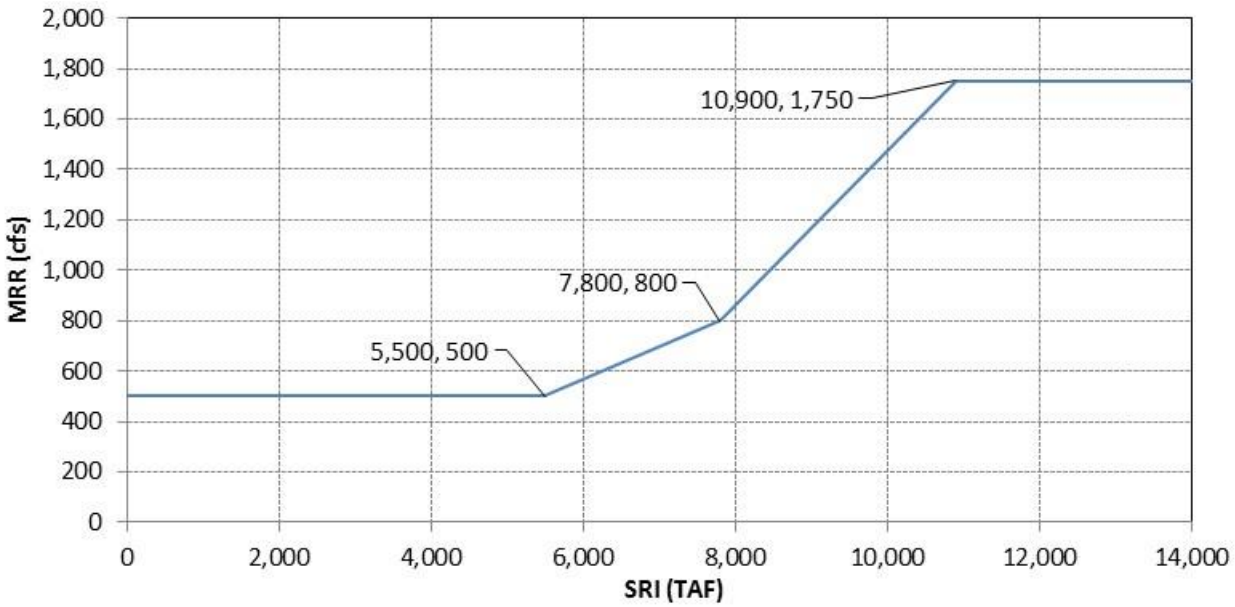


Figure 3.2-1. January Relationship Between SRI and MRR

Januarys with an SRI of less than 5.5 MAF would have an MRR of 500 cfs, and those with a SRI greater than 11.5 MAF would have an MRR of 1,750 cfs. SRIs between 5.5 MAF and 11.5 MAF would be linearly interpolated as shown in Figure 3.2-1.

The three inflection points were selected based on their exceedance probabilities shown in Figure 2.1-1, an SRI of 5.5 MAF corresponds to approximately 95% exceedance probability and the MRR would be 500 cfs only 5% of the time, based on historical recurrence. Similarly, an SRI of 11.5 MAF corresponds to a 40% exceedance probability and the MRR would be 1,750 cfs 40% of the time. An SRI of 7.8 MAF corresponds to a historical exceedance probability of 80% and the MRR would be between 500 and 800 cfs 15% of the time, and between 800 and 1,750 cfs 40% of the time. The MRRs of 500, 800, and 1,750 cfs are biologically-based, and are described in detail in the associated *Biological Rationale, Development and Performance of the Modified Flow Management Standard*.

3.2.2 February through March

Calculation of the MRR for February through March uses the same relationship between ARI and MRR for both months. The MRR for this period uses the February and March B120 forecast values to determine the ARI. Figure 3.2-2 shows the February through March MRR curve.

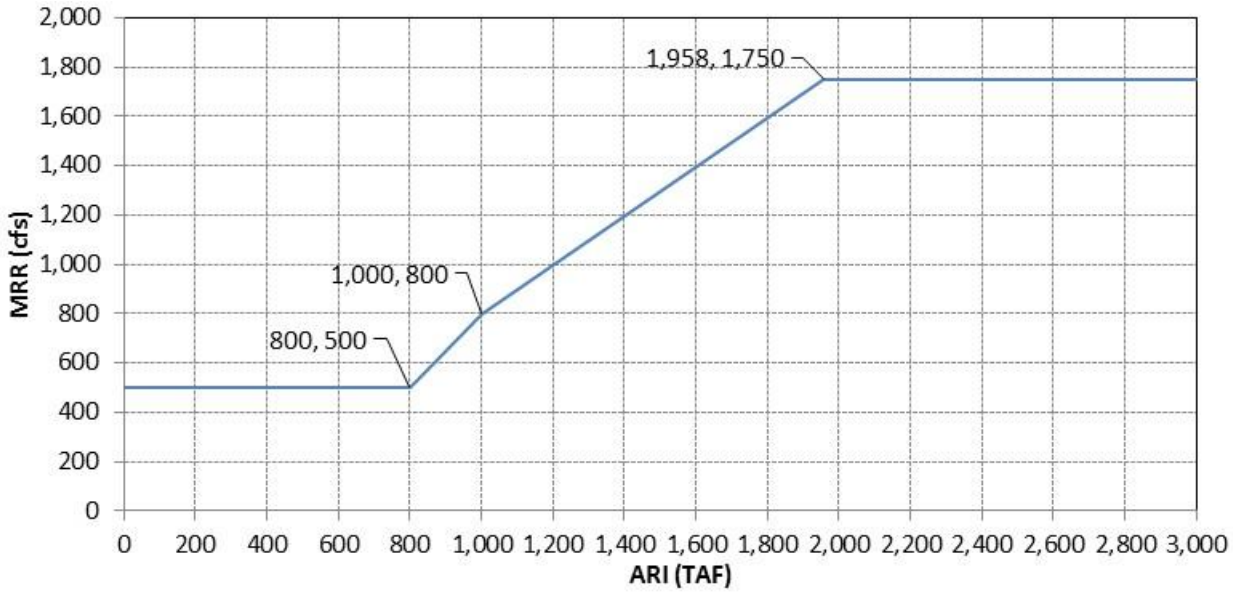


Figure 3.2-2. February through March Relationship Between ARI and MRR

Years with a February or March ARI less than 800 TAF would have an MRR of 500 cfs, and years with a February or March ARI greater than 1,958 TAF would have an MRR of 1,750 cfs. An ARI of 1,000 TAF would correspond to 800 cfs, and MRRs for years with an ARI between 800 and 1,000 TAF, or between 1,000 and 1,958 TAF, would be linearly interpolated between points, as shown in Figure 3.2-2.

The ARI and MRR specific inflection points were selected based on statistical recurrence of historical unimpaired flows. An ARI of 800 TAF corresponds to an approximately 97% exceedance probability, so flows would be 500 cfs in 3% of years based on historical recurrence. An ARI of 1,000 TAF corresponds to an approximately 90% exceedance probability, so flows would be between 500 cfs and 800 cfs only 7% of the time, and less than 800 cfs only 10% of the time. An ARI of 1,958 TAF corresponds to approximately 60% exceedance probability; the MRR would be 1,750 cfs 60% of the time, and between 800 and 1,750 cfs 30% of the time. The MRRs of 500, 800, and 1,750 cfs are biologically-based, and are described in detail in the associated *Biological Rationale, Development and Performance of the Modified Flow Management Standard*.

3.2.3 April through June

Calculation of the MRR for April through June uses the same relationship between ARI and MRR for all three months. The MRR for this period uses the April and May B120 forecast value to determine the ARI. Since the last B120 forecast is made in early May, the May B120-based ARI would also be used for June. Figure 3.2-3 shows the April through June MRR curve.

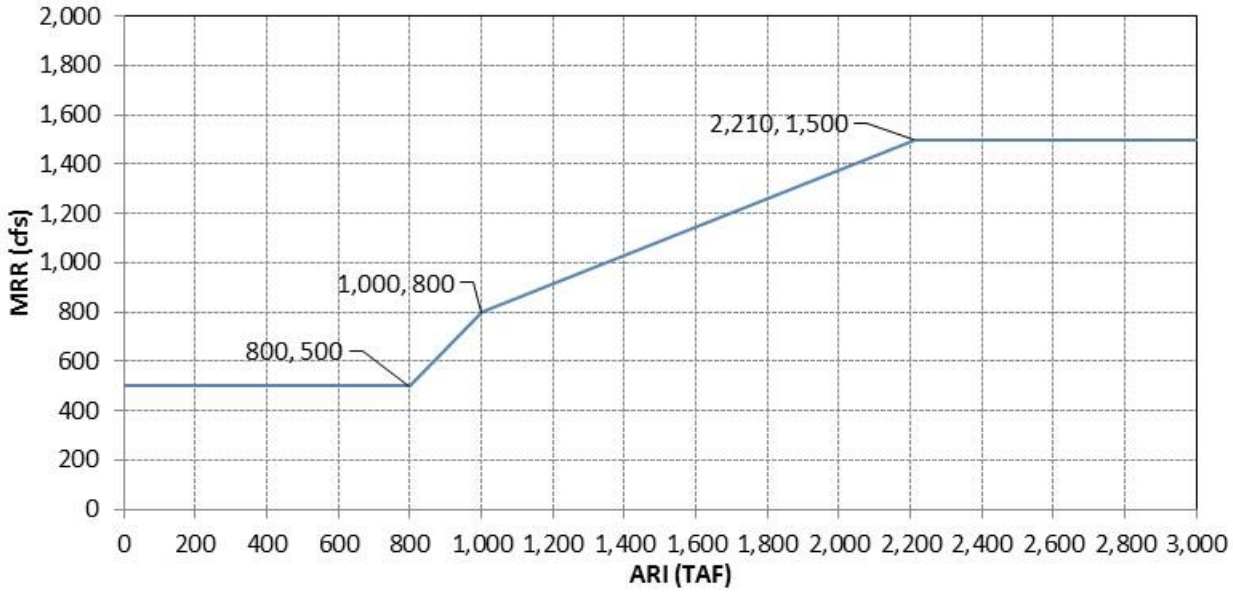


Figure 3.2-3. April through June Relationship Between ARI and MRR

Years with an April or May ARI less than 800 TAF would have an MRR of 500 cfs, and years with an April or May ARI greater than 2,210 TAF would have an MRR of 1,500 cfs. An ARI of 1,000 TAF would correspond to 800 cfs, and MRRs for years with an ARI between 800 and 1,000 TAF, or between 1,000 and 2,210 TAF, would be linearly interpolated between points, as shown in Figure 3.2-3. While the 2006 FMS has a maximum MRR in March through September of 1,750 cfs, the maximum MRR in April through June of the Modified FMS was reduced to 1,500 cfs to create additional operational flexibility for Reclamation's operations.

The ARI and MRR specific inflection points were selected based on statistical recurrence of historical unimpaired flows. As mentioned above, an ARI of 800 TAF corresponds to an approximately 97% exceedance probability, and an ARI of 1,000 TAF corresponds to an approximately 90% exceedance probability. An ARI of 2,210 TAF corresponds to approximately 57% exceedance probability; the MRR would be 1,500 cfs 57% of the time, and between 800 and 1,500 cfs 37% of the time. The MRRs of 500, 800, and 1,500 cfs are biologically-based, and are described in detail in the associated *Biological Rationale, Development and Performance of the Modified Flow Management Standard*.

3.2.4 July through September

Calculation of the MRR for July through September uses the same relationship between ARI and MRR for all three months. The MRR for this period uses the ARI computed in early May (or potentially an updated ARI if the B120 is updated after the May forecast). Figure 3.2-4 shows the July through September MRR curve.

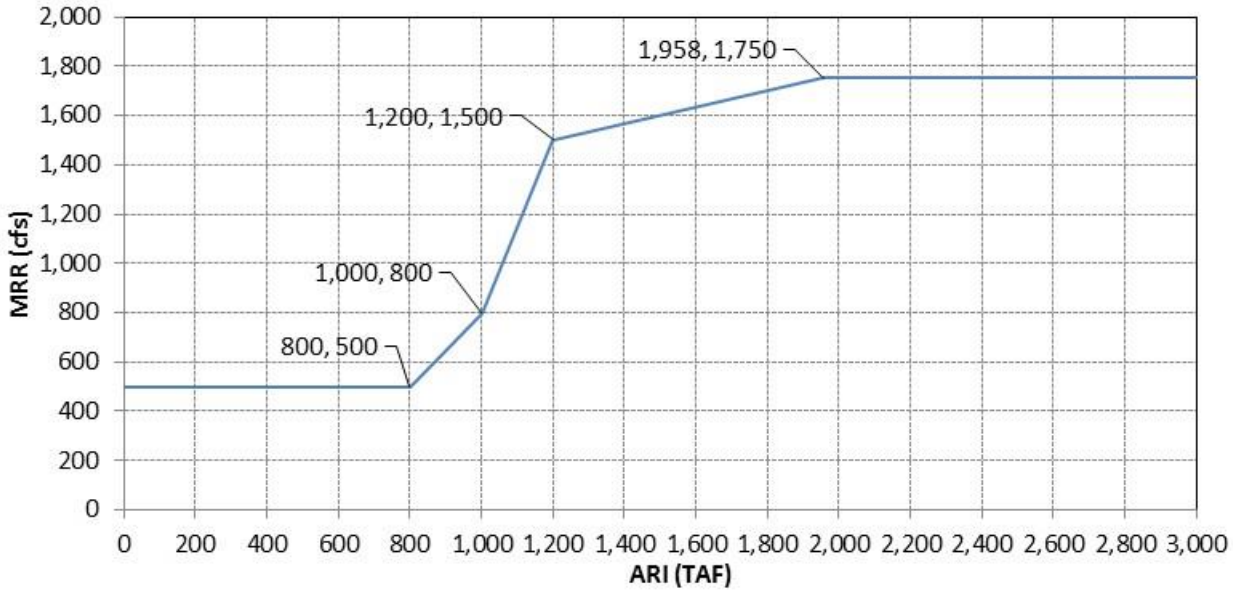


Figure 3.2-4. July through September Relationship Between ARI and MRR

The July through September MRR curve includes a fourth inflection point, in contrast to all of the other periods' curves with only three inflection points. As described in the February through March section, the ARIs of 800 and 1,958 TAF correspond to the historical 97% and 57% exceedance probabilities, respectfully. Similar to the MRR curves for February through June, an ARI of 1,000 TAF would correspond to an exceedance probability of just over 90%, and an ARI of 1,200 TAF corresponds to an exceedance probability of 85%.

The 1,200 TAF ARI point was added to increase the MRR in July through September for the benefit of cooler water temperatures in drier years. The 1,200 TAF ARI point resulted in increased MRR in approximately 27% of years (for ARIs between 1,000 TAF and 1,958 TAF). The years within this range of ARI are generally below normal hydrologic years. The higher MRR results in biological benefits, further described in the associated *Biological Rationale, Development and Performance of the Modified Flow Management Standard*.

3.2.5 October

The October MRR is also based on the May ARI value (or potentially an updated ARI if the B120 is updated after the May forecast). The October ARI-MRR relationship is almost identical to the November through December relationship (see below), except the MRR is capped at 1,500 cfs rather than 2,000 cfs. Figure 3.2-5 shows the October ARI-MRR relationship.

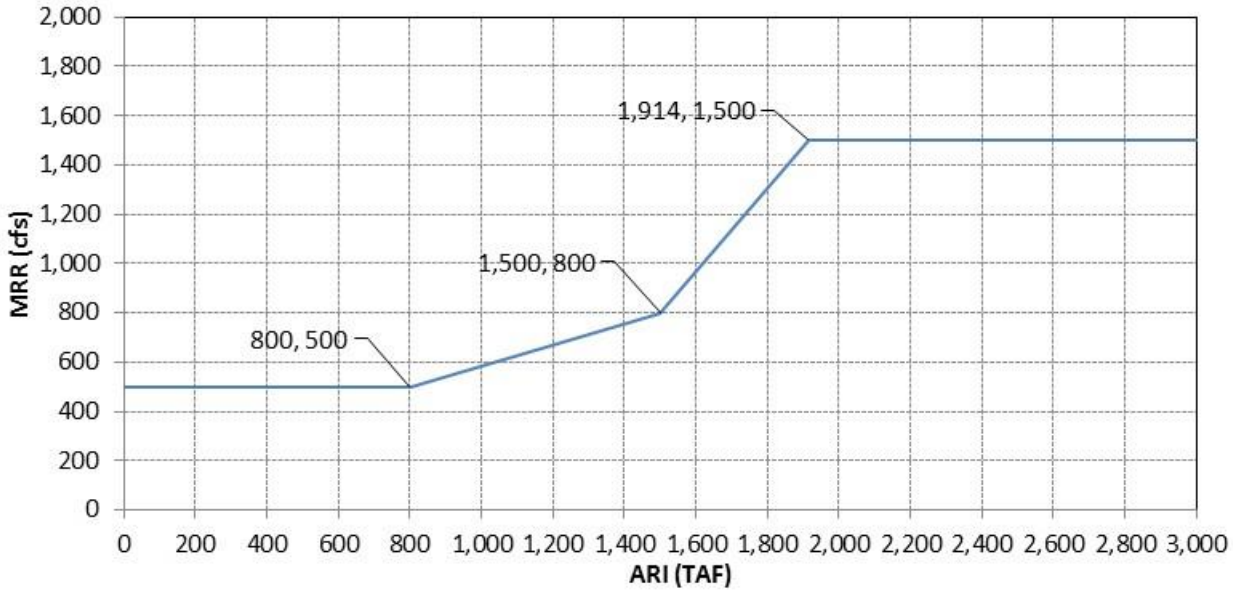


Figure 3.2-5. October Relationship Between ARI and MRR

As previously mentioned, the October curve is similar to the November to December curve, but October has a maximum MRR of 1,500 cfs, instead of 2,000 cfs; an ARI of 1,914 TAF is the interpolated ARI on the line between an ARI of 1,500 TAF for 800 cfs, and an ARI of 2,210 TAF for 2,000 cfs, as used for the November through December MRRs. An ARI of 1,914 TAF would correspond to an approximately 64% exceedance, meaning the MRR would be 1,500 cfs 64% of the time, based on historical recurrence of unimpaired flows. An ARI of 1,500 TAF corresponds to approximately 73% exceedance probability; the MRR would be between 500 and 800 cfs 22% of the time, and between 800 and 1,500 cfs 10% of the time. A maximum October MRR of 1,500 cfs is a biologically-based flow, and is further described in the associated *Biological Rationale, Development and Performance of the Modified Flow Management Standard*.

3.2.6 November through December

Calculation of the MRR for November through December uses the same relationship between ARI and MRR for both months. The MRR for this period uses the ARI computed in early May (or potentially an updated ARI if the B120 is updated after the May forecast). Figure 3.2-6 shows the November through December MRR curve.

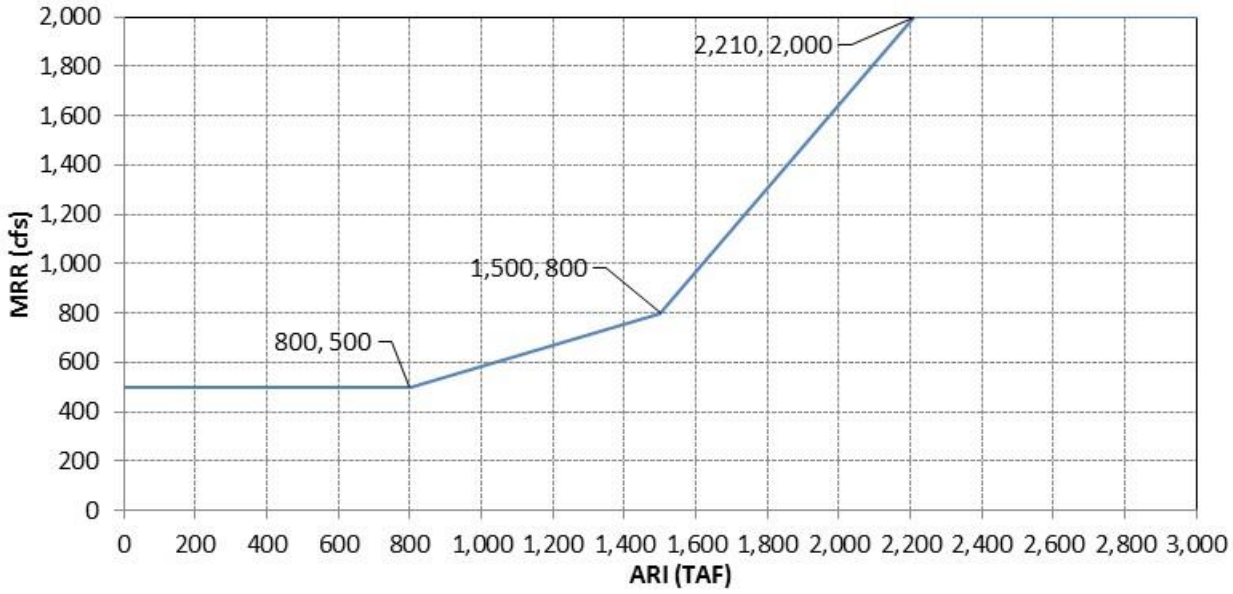


Figure 3.2-6. November through December Relationship Between ARI and MRR

The November through December MRR curve uses the same ARI values for the 500 and 800 cfs points as the February through March and October curves. As described above, the MRR line above an ARI of 1,500 TAF is the same for November and December as October, except the November and December line extends to 2,000 cfs for an ARI of 2,210 TAF, whereas the October line only extends to 1,500 cfs. The 2,210 TAF ARI value for the 2,000 cfs point corresponds to approximately 60% exceedance probability; the MRR would be between 800 cfs and 2,000 cfs approximately 13% of the time, and the MRR would be 2,000 cfs 60% of the time.

A maximum MRR of 2,000 cfs was a biologically-based decision, and is described in the associated *Biological Rationale, Development and Performance of the Modified Flow Management Standard*.

3.3 RESERVOIR STORAGE REQUIREMENTS

The Modified FMS includes end-of-month storage requirements in May and December. This section describes the rationale and objectives for each of the storage requirements.

3.3.1 End-of-May

The end-of-May (EOM) storage requirement is based on the ARI and it is first calculated with the February 1 B120, and is then updated with the March 1, April 1, and May 1 B120s. Figure 3.3-1 shows the hydrological relationship between ARI and EOM storage requirement and historical EOM storages.

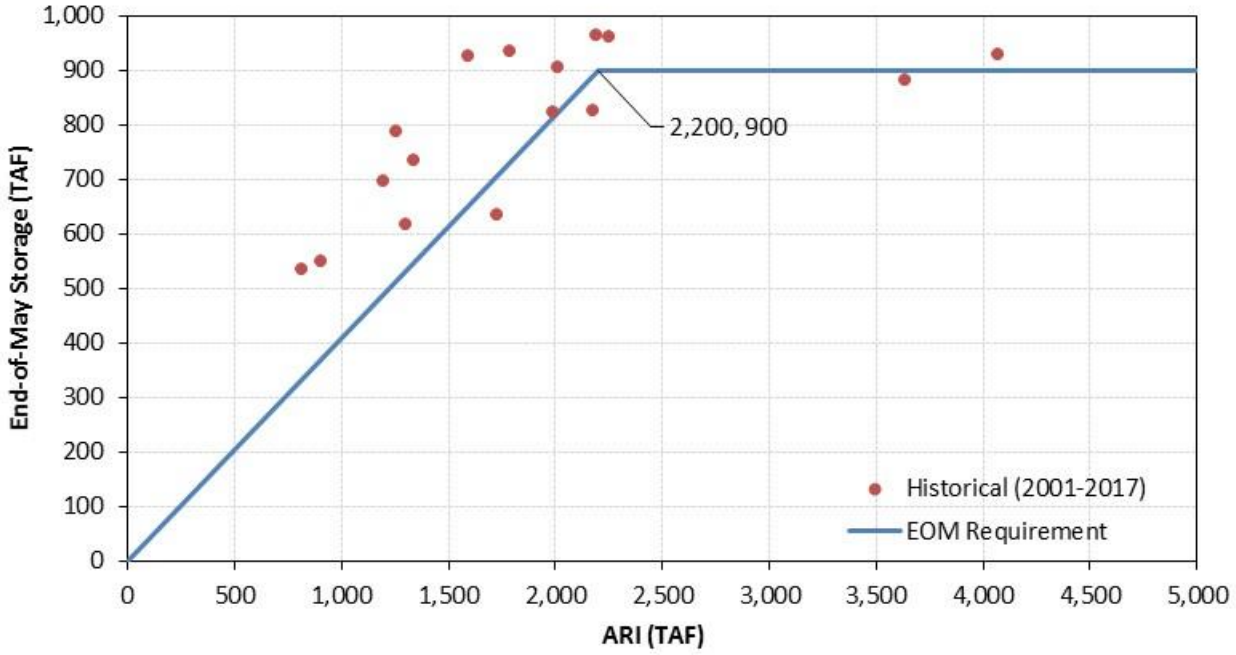


Figure 3.3-1. End-of-May Storage Requirement Curve

The EOM storage requirement affects February through May operations. Knowing the EOM storage requirement and the MRR between February and May, along with the Folsom Reservoir inflow forecast, allows Reclamation to manage releases from storage above the MRR to ensure adequate storage to meet or exceed the EOM requirement for the year.

The EOM storage requirement was included to provide protections against opportunistic releases from Folsom Reservoir storage for out-of-basin purposes to the detriment of American River beneficial uses, while providing Reclamation with operational flexibility similar to historical operations. Historically, the EOM storage requirement would have affected Folsom Reservoir operations in three of the last seventeen years (in other years the storage exceeded the EOM storage requirement). Figure 2.3-1 also shows historical EOM storage (DWR 2017b) and what the EOM storage requirement would approximately have been if the EOM storage requirement would have been in place.

3.3.2 End-of-December

There are two end-of-December (EOD) storage requirements; the normal EOD storage requirement of 300 TAF, and a dry-year requirement of 230 TAF.

The 300 TAF requirement was a partially the result of iteration within CalSim II to balance water temperature and flow benefits on the lower American River with effects on Shasta Reservoir storage and resulting Sacramento River water temperatures. A range of storages between 230 TAF and 360 TAF were evaluated, and a 300 TAF EOD storage requirement was determined to provide benefits on the lower American River, without redirecting impacts to the Sacramento River. Further evaluation showed that the 300 TAF EOD storage requirement provided adequate

storage to ensure Folsom Reservoir storage remained high enough to supply water supply diversions from Folsom Reservoir for a subsequent year as dry as the driest year in the hydrologic record, 1977.

The 230 TAF requirement was based on the minimum EOD storage that could continue to provide Folsom Reservoir storage protections in an extremely dry year, but, based on iteration, would allow Reclamation operational flexibility similar to historical conditions in extremely dry years.

Operations to meet the EOD storage requirement can be forecasted starting with the publication of the February B120, and further refined with subsequent B120 forecasts. Starting with the February B120, the MRR and redd dewatering protective adjustments (RDPA), described in Section 3.4, can be determined for each month through the end of the calendar year. Initial CVP water supply allocations are typically forecasted in February, and then updated as water supply conditions become better defined. Also, through coordination with PCWA and Sacramento Municipal Utility District, along with runoff forecasts from both DWR and the National Oceanographic and Atmospheric Administration (NOAA)/ National Weather Service (NWS) California-Nevada River Forecast Center (CNRFC), inflow forecasts to Folsom Reservoir can be made and updated as additional information becomes available. By knowing required releases to meet American River needs from Folsom Reservoir, such as the MRR and American River water supply deliveries, along with a forecast of reservoir inflow, the available volume for additional releases can be forecasted and included in operations planning. With the EOM requirement, storage operations, and flood control generally determining operations in February through May, operations for the EOD requirement would typically start at the beginning of June. However, the Water Forum expects that all operations forecasts starting in February would anticipate the EOD requirement and would make accommodations for the EOD requirement as early as necessary.

3.3.2.1 Conference Year Exceptions

Meeting the EOD requirement and operations for the 300 TAF EOD requirement during extremely dry years is not always practical nor possible. As such, a conference year exception was developed to change the EOD requirement from 300 TAF to 230 TAF. The Conference Year exception was tied to the UIFR, described in Section 1.2.2, to provide a common definition for extremely dry conditions. With a UIFR forecast of less than 400 TAF, the EOD requirement would be reduced to 230 TAF. This is expected to occur in approximately 3% of years; since 1901, three years would have qualified: 1924 (with a UIFR of 378 TAF), 1977 (with a UIFR of 331 TAF), and 2015 (with a UIFR of 332 TAF) (DWR 2017b).

3.3.2.2 Extended Drought Exceptions

Similar to the conference year exception described in Section 3.3.2.1, the Water Forum recognized that severe persistent droughts, while maybe not as intense in a single year as the conference year droughts, also created substantial water management challenges and also required an exception. The Water Forum performed an evaluation of 2- 3-year, and 4-year UIFR

volumes and determined that a 2-year UIFR volume of 1,200 TAF, a 3-year UIFR volume of 2,700 TAF, and a 4-year UIFR volume of 4,400 TAF had similar recurrence probabilities as the conference year drought exception; therefore, these years would also have a reduced EOD requirement of 230 TAF. Table 3.3-1 shows a comparison of years that meet the conference year exception, and the 2-, 3-, and 4-year drought exceptions.

Table 3.3-1. Historical Years Meeting the Conference Year and Extended Drought Exception Definitions

Water Year	1-Year UIFR Volume (TAF)	2-Year UIFR Volume (TAF)	3-Year UIFR Volume (TAF)	4-Year UIFR Volume (TAF)
1924	378			
1977	331	849		
1990				
1992			2,699	4,100
2015	332	1,052	1,818	3,316
2016				3,607

Source: CDEC American River at Folsom (AMF) Full-Natural Flow

Figure 3.3-2 shows an exceedance probability of historical 1-, 2- ,3-, and 4-year UIFR volumes and the Conference Year and extended drought exception trigger values corresponding to each historical UIFR volume.

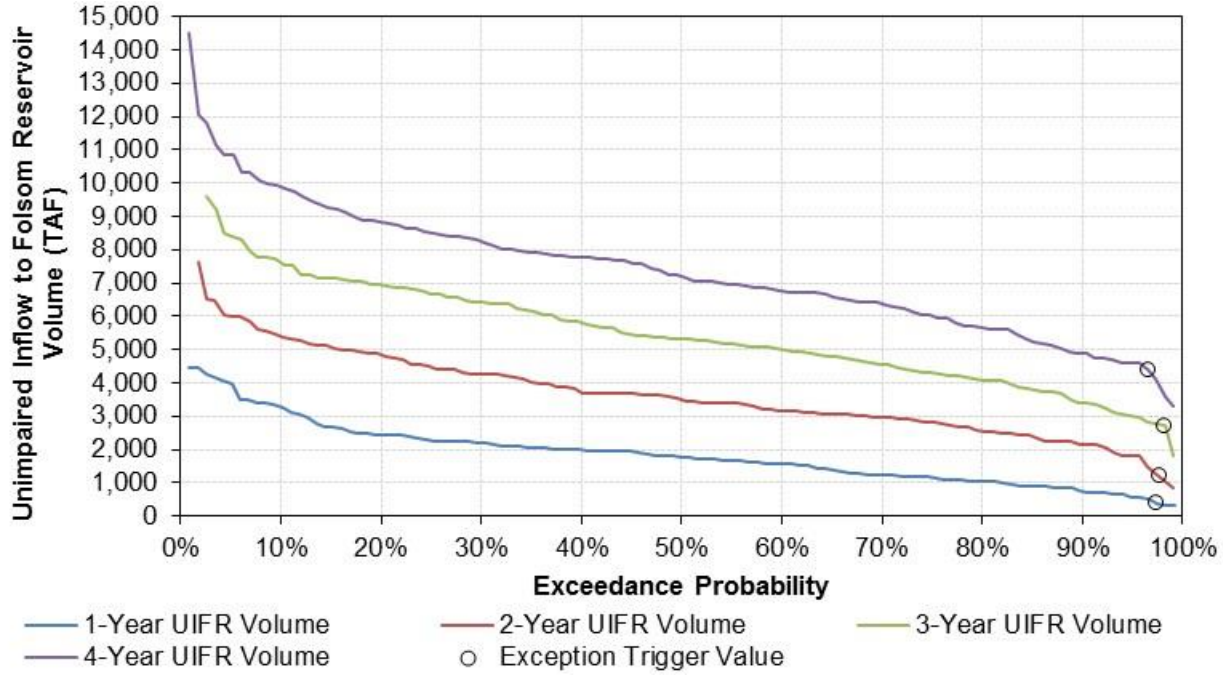


Figure 3.3-2. Exceedance Probability of Historical Conference Year and Extended Drought Exceptions

3.3.2.3 Operational Exception

In addition to the two defined exceptions above, an exception to the EOD requirement would also be made if operations to meet the MRR and surface water supply deliveries within the

American River watershed resulted in Folsom Reservoir storage falling below the EOD requirement; i.e., if Folsom Reservoir storage met the EOM requirement, and subsequent releases were only to meet MRR and American River water supply diversions and the resulting EOD Folsom Reservoir storage was below the EOD requirement. The EOD requirement is not intended to be met through a reduction in the MRR nor a reduction in surface water supply deliveries within the American River watershed.

3.4 REDD DEWATERING PROTECTIVE ADJUSTMENTS

The Modified FMS also includes RDPAs to ensure reductions in MRR do not result in dewatering of fall-run Chinook salmon or steelhead redds. The RDPA would restrict changes in the MRR between December and June, but would not affect releases above the MRR.

3.4.1 Fall-Run Chinook Salmon

The fall-run Chinook salmon RDPA affect winter MRRs in two ways: there is a restriction on increases in MRR for January, and in decreases in MRR for January and February.

3.4.1.1 Restriction on Increasing the January MRR from the December MRR

In recognition of the uncertainty of the January SRI forecast, as described in Section 3.1.1, the Modified FMS precludes increases in MRR from December to January. As described in the *Biological Rationale, Development and Performance of the Modified Flow Management Standard,* fall-run Chinook redds are constructed in October through December, and the fall-run Chinook fry emerge through February. Rather than have a condition where a January-forecasted SRI resulted in an increase in MRR, only to see a decrease in MRR with the February B120 forecast, the Modified FMS only allows for reductions in the January MRR from the December MRR.

3.4.1.2 Restrictions on Reductions in the January and February MRR from December MRR

The fall-run Chinook salmon RDPA would restrict MRR reductions from the December MRR for January and February. If the SRI-based MRR for January, or the ARI-based MRR for February was less than 70% of the December MRR, the January or February MRR could not be less than 70% of the December MRR. If the SRI- or ARI-based MRR was higher, then it would be used. The rationale for the maximum allowable 30% reduction is described in the *Biological Rationale, Development and Performance of the Modified Flow Management Standard*.

3.4.2 Steelhead

The steelhead RDPA restrict MRR reductions from February and March, through the end of June. Table 2.4-2 shows the steelhead RDPA-based MRR for February through May.

Table 2.4-2. Steelhead RDPA-based MRR for February through May

MRR_{Jan} or MRR_{Feb} (cfs)	Steelhead RDPA-Based MRR for February-May (cfs)
≤700	500
800	520
900	580
1,000	640
1,100	710
1,200	780
1,300	840
1,400	950
1,500	1,030
1,600	1,100
1,700	1,180
1,800	1,250

The ARI- and fall-run Chinook RDPA-based MRR for February is compared to the steelhead RDPA-based MRR in Table 3.4-2, using the final, RDPA-based January MRR as a basis. Steelhead RDPA for January and February MRR values between those in the table would be linearly interpolated. The maximum MRR in January through May is 1,750 cfs, but 1,800 cfs is included in the table as a maximum value. If the ARI-based MRR is less than the steelhead-RDPA-based MRR, the RDPA-based MRR controls operations. Otherwise, the ARI-based MRR remains in effect. This procedure would be repeated in March, but after March, the RDPA-based MRR determined in March would remain the minimum MRR through the end of June. The timing and magnitudes of the allowable MRR reductions are biologically based, and are further described in the associated *Biological Rationale, Development and Performance of the Modified Flow Management Standard.*

3.5 SPRING PULSE FLOW

A spring pulse flow of three times the MRR, up to 4,000 cfs, would be triggered if the March MRR was between 1,000 cfs and 1,500 cfs, and no flows of at least 4,000 cfs had occurred between February 1 and March 15.

A March MRR of 1,000 cfs would be associated with an ARI of approximately 815 TAF and would be expected to occur approximately 6% of the time. A March MRR of 1,500 cfs would correspond to an ARI of approximately 1,319 TAF and would be expected to occur approximately 22% of the time. In wetter years, when the MRR is >1,500 cfs, "natural" pulse flows have occured due to normal operations in all but two years since 2001 (2008 and 2013).

A 3,000 to 4,000 cfs pulse would be associated with relatively dry conditions. Historically, Nimbus releases of at least 3,000 cfs have occurred between February 1 and April 15 in nine of the last seventeen years (53% of years). Table 3.5-1 and Figure 3.5-1 show whether pulse flows would have been historically triggered, and the exceedance probability of the March ARI. Years without historical flows above 3,000 cfs between February 1 and April 15 are highlighted in gray.

Table 3.5-1. Potential Historical Pulse Flow Operations

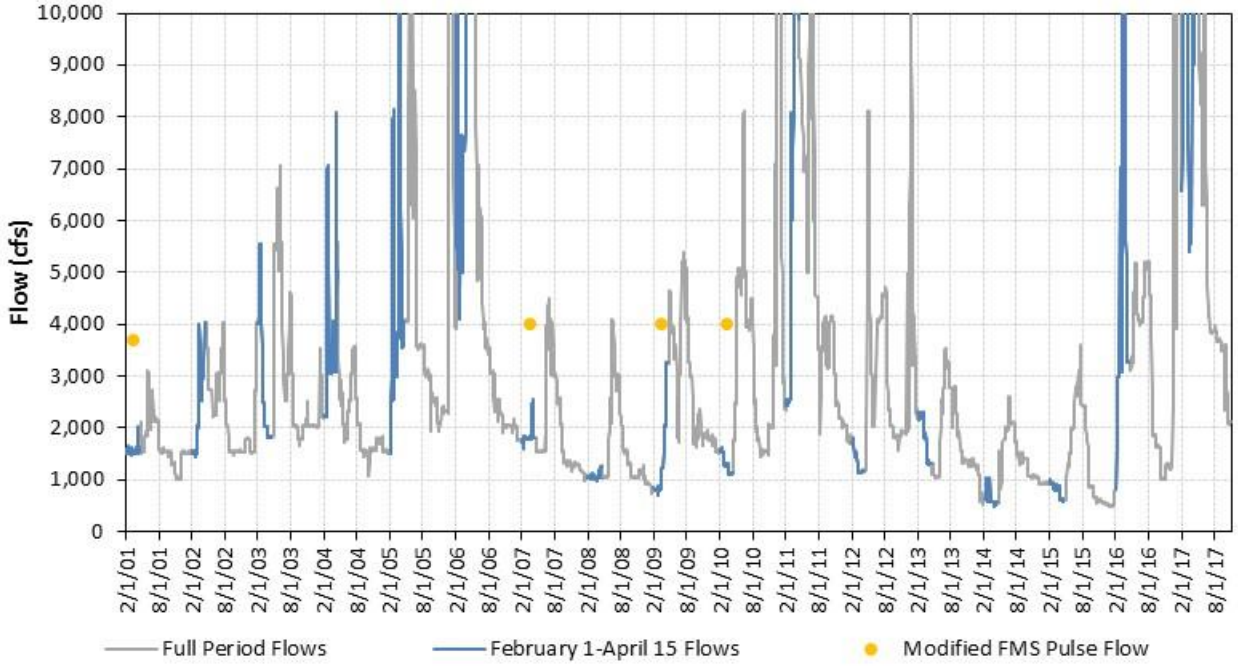
Year	March 1 ARI[1] (TAF)	March 1 ARI Exceedance[2]	March MRR[3] (cfs)	Pulse Flow (cfs)	Days with February 1 to April 15 flows Greater than 3,000 cfs[4]
2001	1,440	78%	1,236	3,709	0
2002	2,070	60%	1,750	0	28
2003	1,759	66%	1,553	0	27
2004	2,106	60%	1,750	0	56
2005	2,420	53%	1,750	0	59
2006	2,672	44%	1,750	0	74
2007	1,610	71%	1,405	4,000	0
2008	1,860	65%	1,653	0	0
2009	1,590	72%	1,385	4,000	9
2010	1,685	67%	1,479	4,000	0
2011	2,552	50%	1,750	0	45
2012	920	92%	680	0	0
2013	1,795	66%	1,589	0	0
2014	935	91%	703	0	0
2015	1,155	85%	954	0	0
2016	2,365	53%	1,750	0	59
2017	4,778	10%	1,750	0	74

[1] Estimated ARI based on available historical B120 forecasts and Folsom Reservoir spill data on CDEC

[2] Based on historical full-natural flow for the American River at Folsom from CDEC (water years 1901-2017)

[3] Based on computed March 1 ARI

[4] Based on historical American River releases from Lake Natoma, from CDEC



Source: CDEC (DWR 2017b)

Figure 3.5-1. Historical Flows below Nimbus Dam with Potential Pulse Flows Under the Modified FMS

The biological rationale for a 3,000 to 4,000 cfs pulse is described in the *Biological Rationale, Development and Performance of the Modified Flow Management Standard*.

4 SELECTED MODEL RESULTS

This section provides selected results for the water and hydropower-related resources. Additional CalSim II and SRWTM model output can be found in Attachment A.

4.1 AMERICAN RIVER HYDROLOGIC OUTPUT

This section provides selected results for American River water resources, including Folsom Reservoir storage and lower American River flows.

4.1.1 Folsom Reservoir Storage

This section includes figures summarizing CalSim II results for Folsom Reservoir storage for selected months. Attachment A includes tables of monthly output for all months for Folsom Reservoir storage for the 2006 FMS and Modified FMS, and the differences in storage between the two runs.

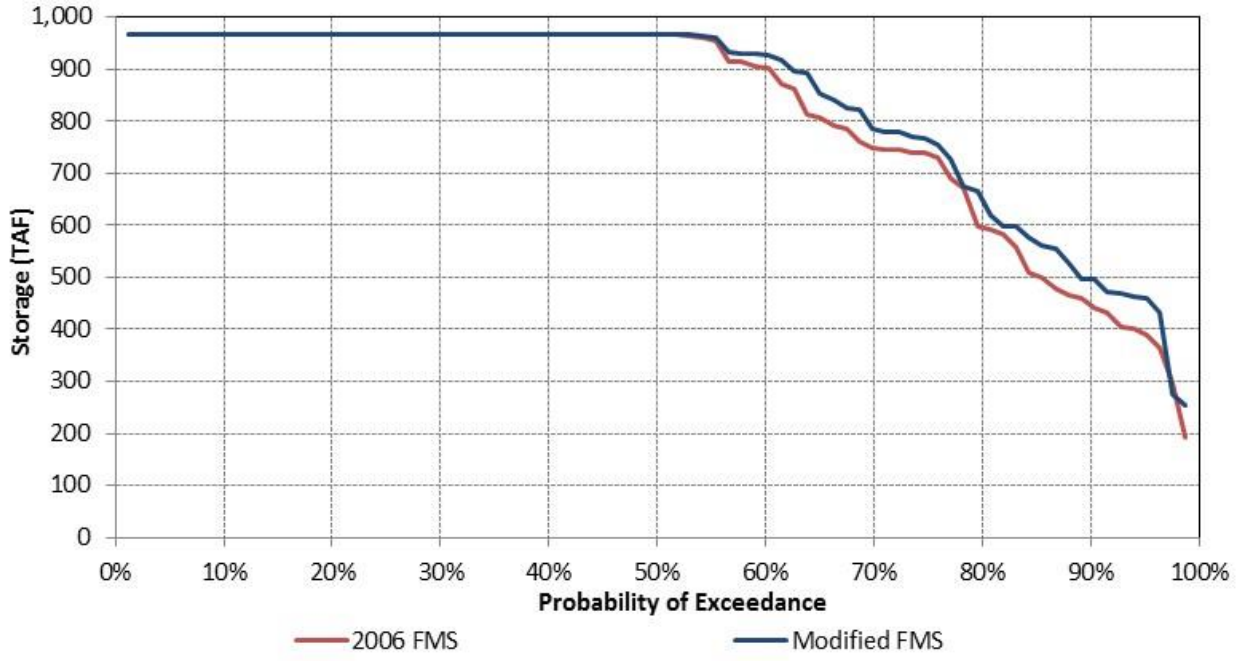


Figure 4.1-1. Comparison of Simulated Folsom Reservoir Storage Exceedances for May

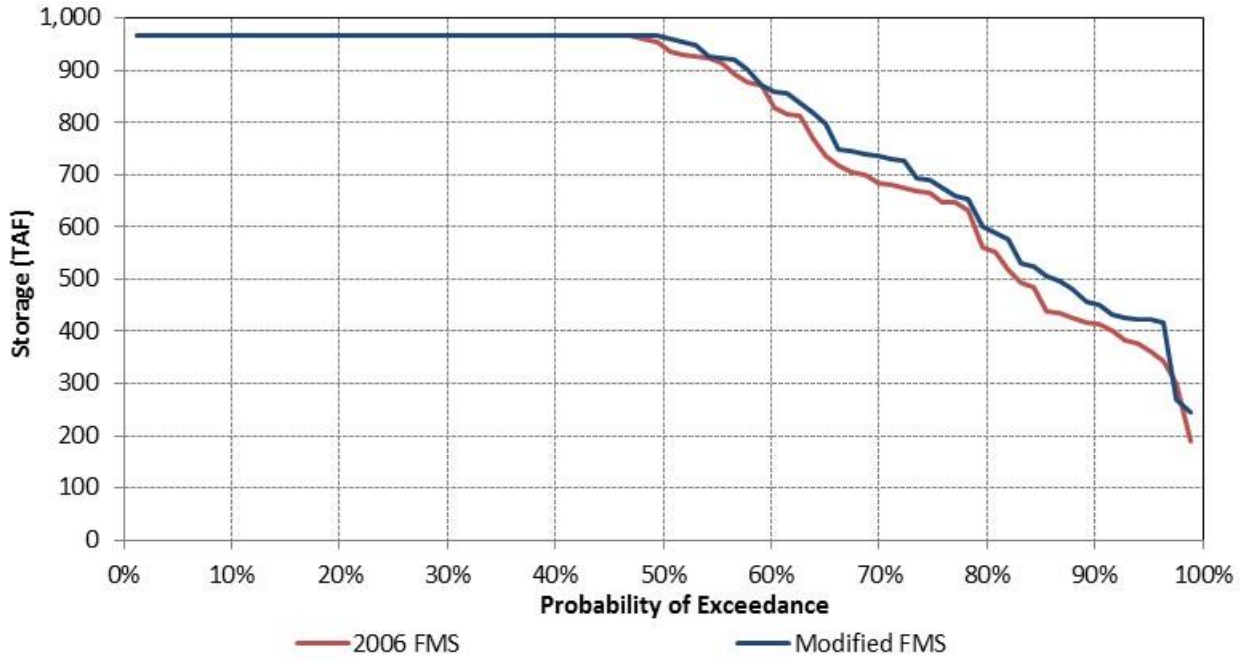


Figure 4.1-2. Comparison of Simulated Folsom Reservoir Storage Exceedances for June

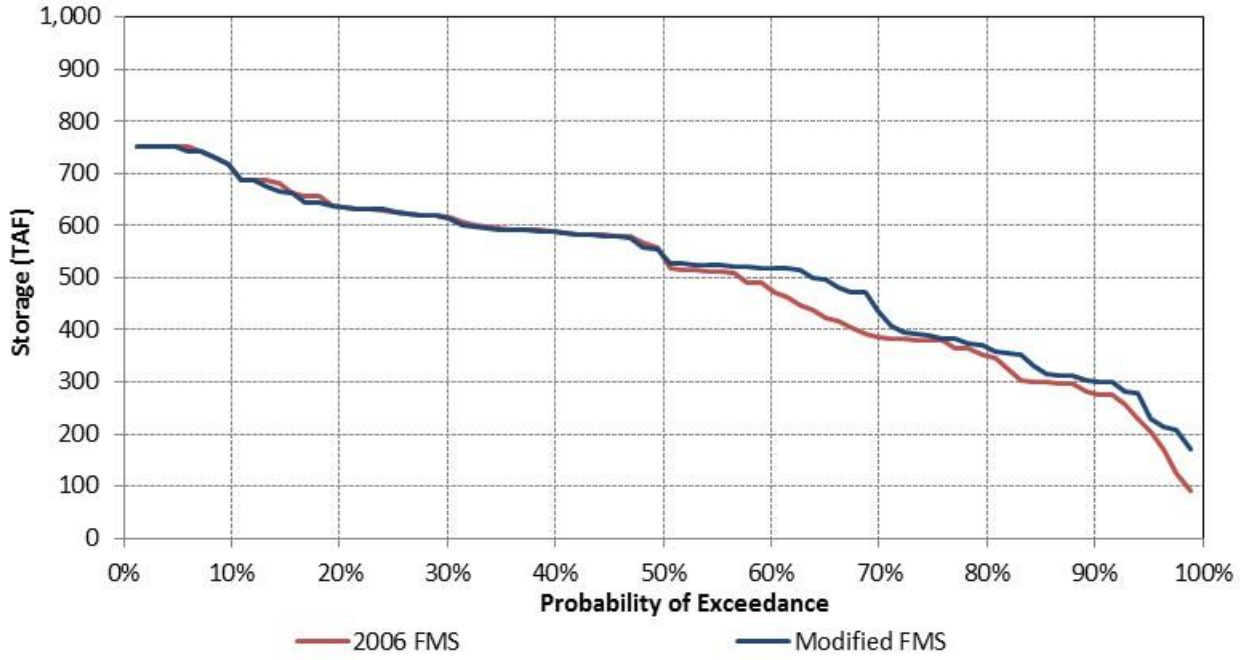


Figure 4.1-3. Comparison of Simulated Folsom Reservoir Storage Exceedances for September

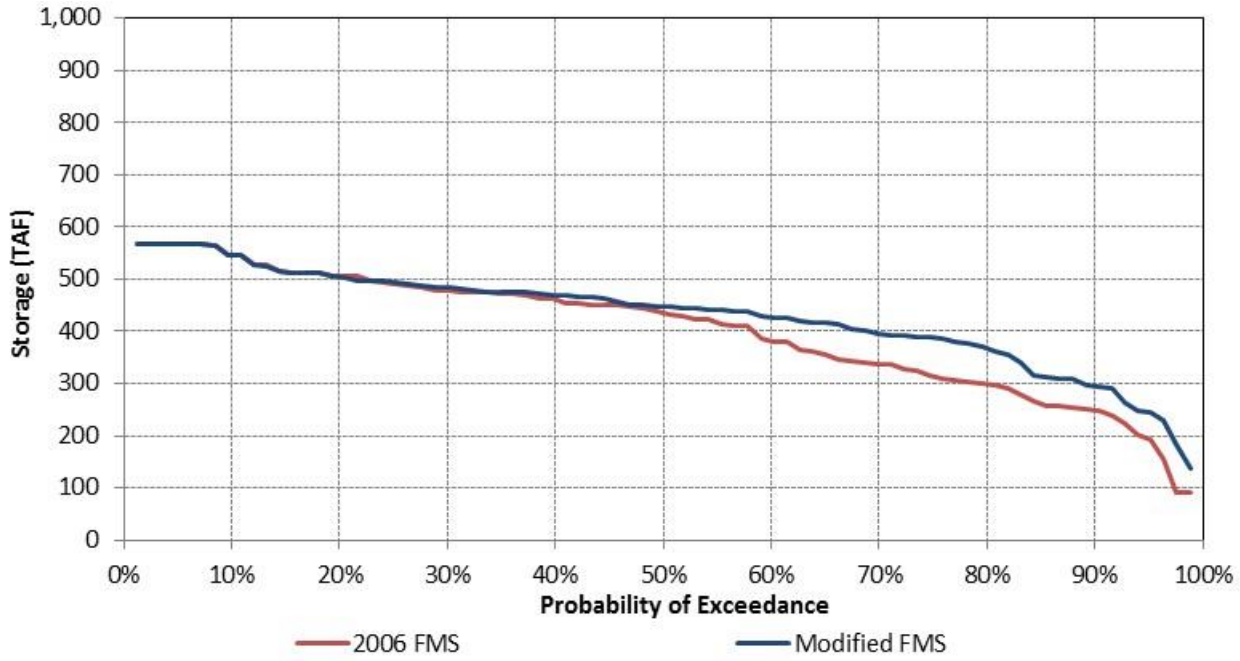


Figure 4.1-4. Comparison of Simulated Folsom Reservoir Storage Exceedances for November

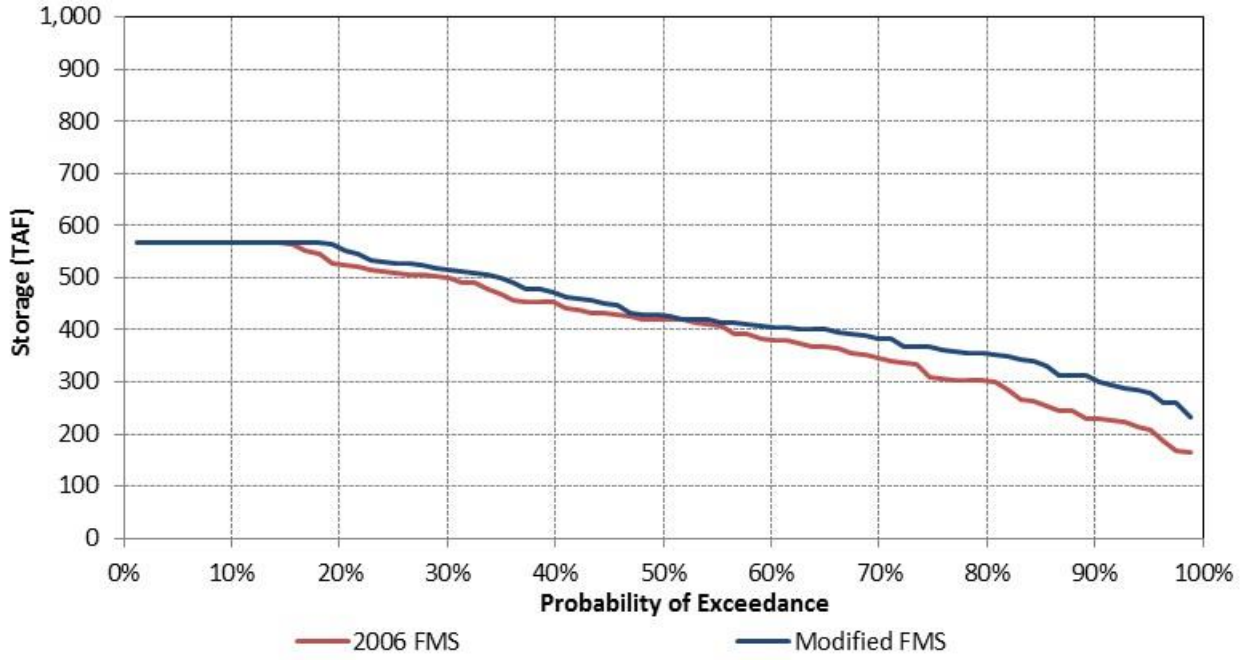


Figure 4.1-5. Comparison of Simulated Folsom Reservoir Storage Exceedances for December

Figures 4.1-6 through 4.1-10 show a comparison of the end-of-month Folsom Reservoir storage by year. Each year is represented across the x-axis. Changes in storage for each month are shown as well in the upper portion of the figure, with change values reflected on the secondary y-axis. A positive change indicates the Modified FMS is higher than the 2006 FMs, a negative change indicates the 2006 FMS is higher than the Modified FMS.

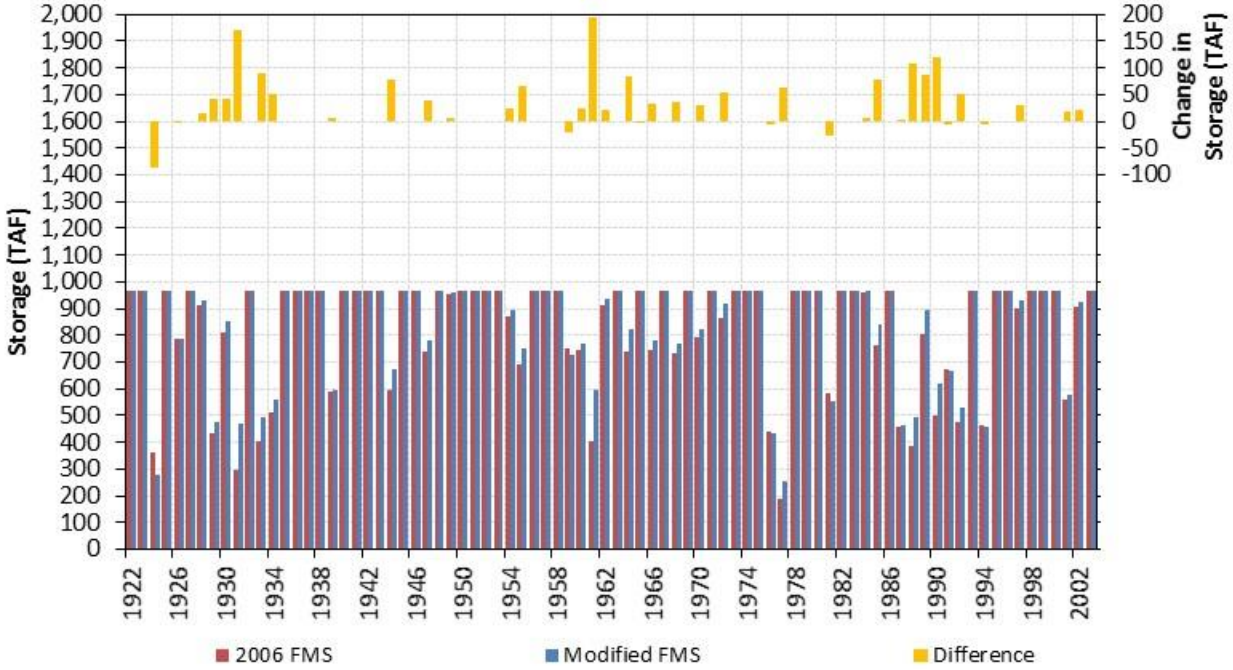


Figure 4.1-6. Year-to-Year Comparison of Simulated End-of-May Folsom Reservoir Storage

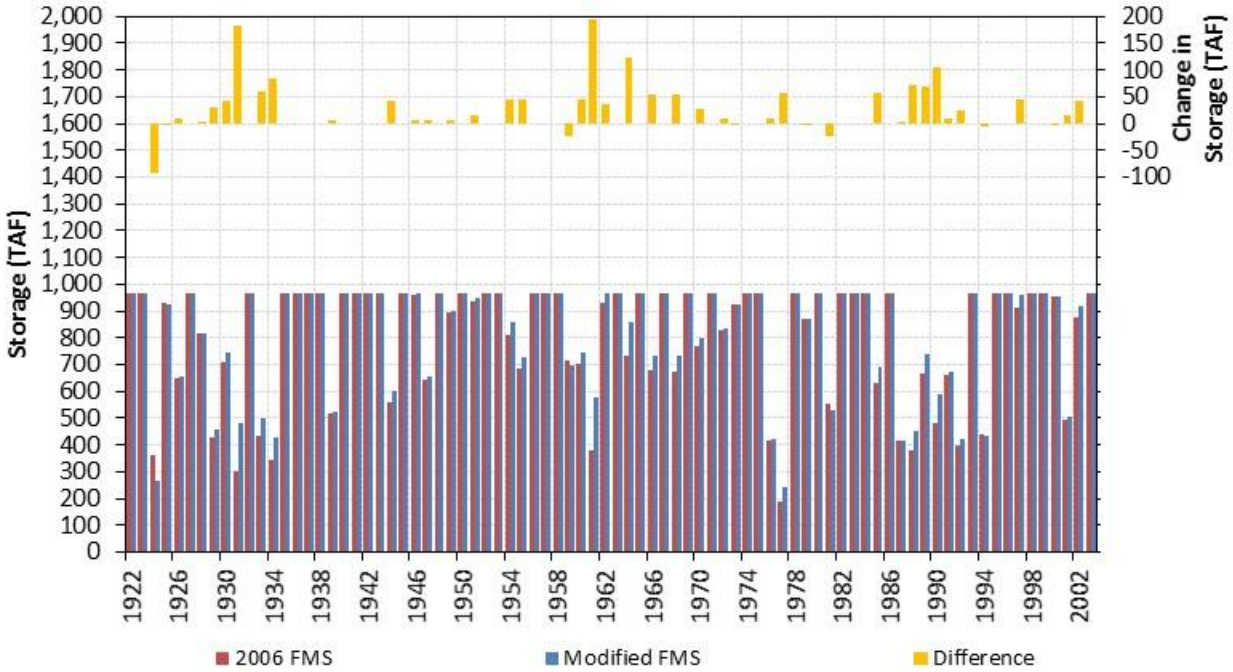


Figure 4.1-7. Year-to-Year Comparison of Simulated End-of-June Folsom Reservoir Storage

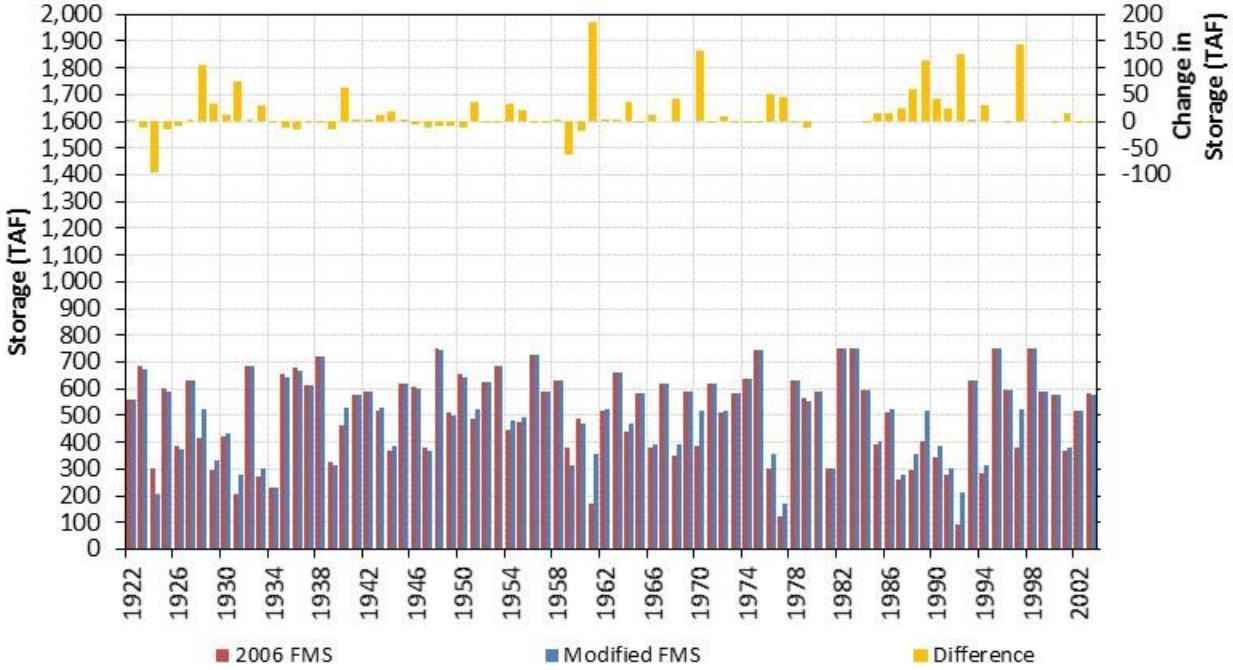


Figure 4.1-8. Year-to-Year Comparison of Simulated End-of-September Folsom Reservoir Storage

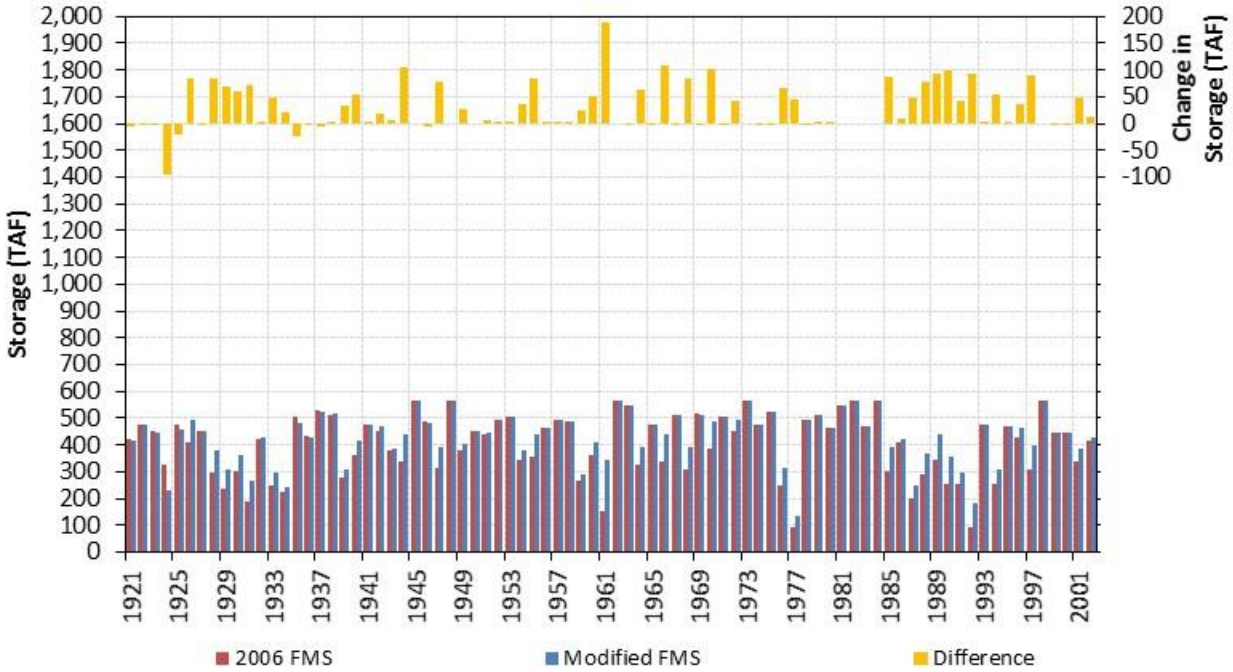


Figure 4.1-9. Year-to-Year Comparison of Simulated End-of-November Folsom Reservoir Storage

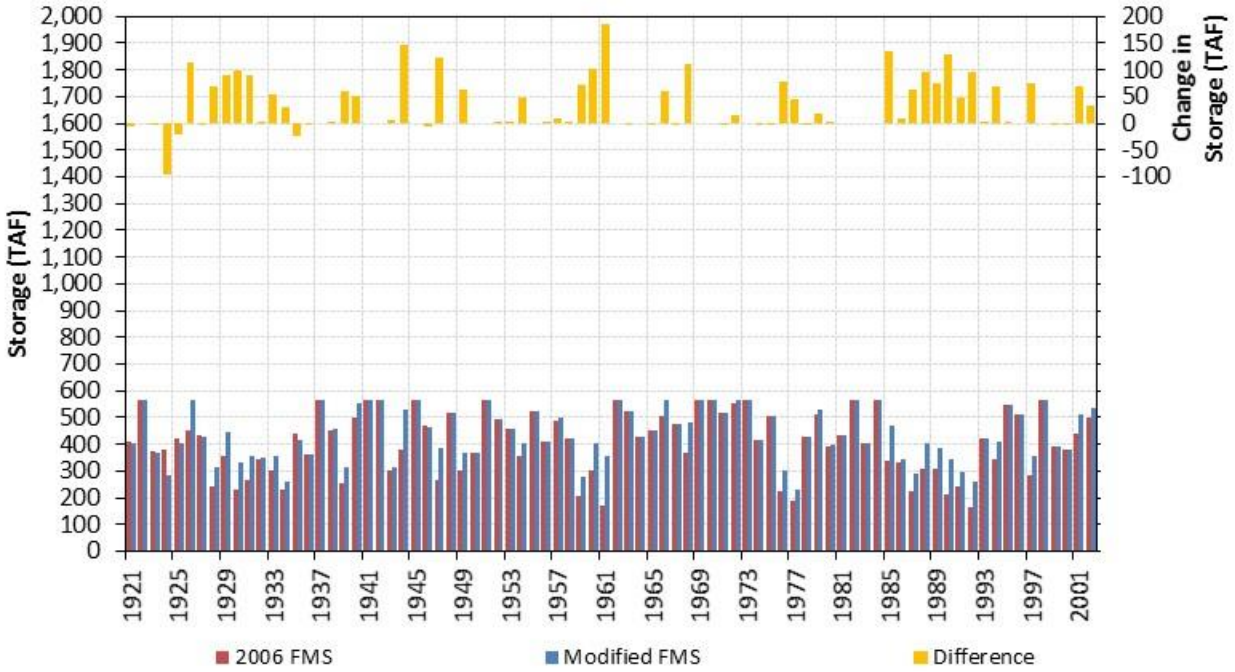


Figure 4.1-10. Year-to-Year Comparison of Simulated End-of-December Folsom Reservoir Storage

4.1.2 Lower American River flows

This section includes Figures 4.1-11 through 4.1-22, showing CalSim II simulated American River flows below Nimbus Dam for selected months.

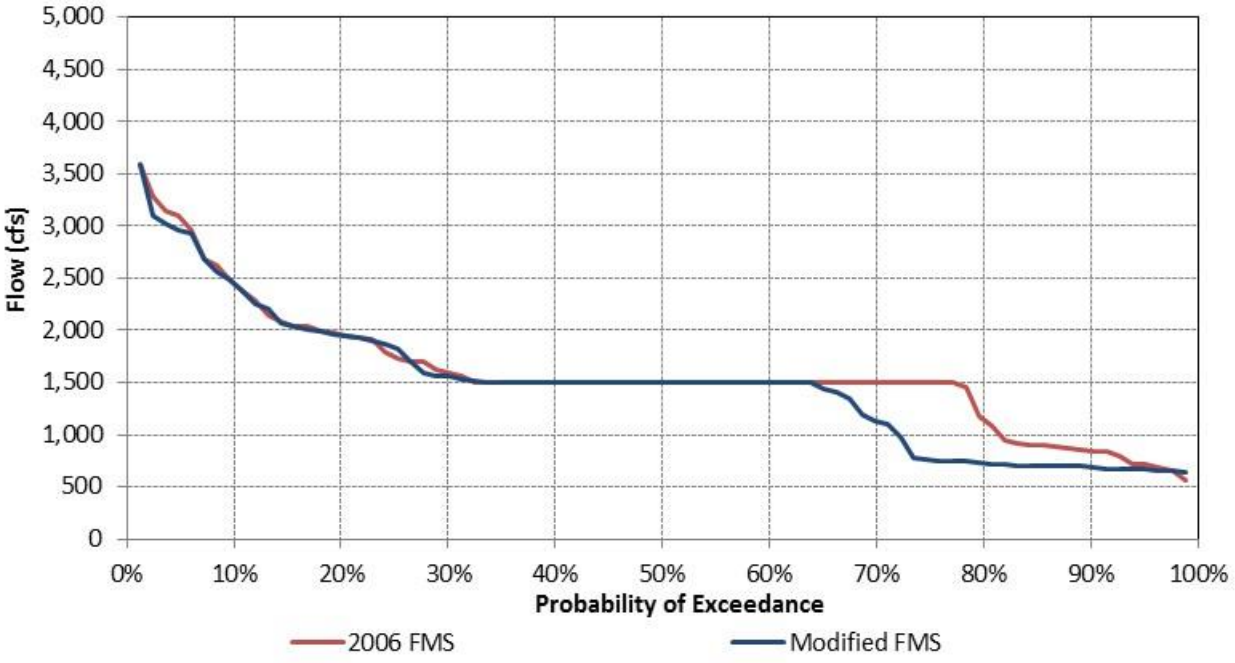


Figure 4.1-11. Comparison of Exceedance Probability for Simulated American River Flow Below Nimbus Dam for October.

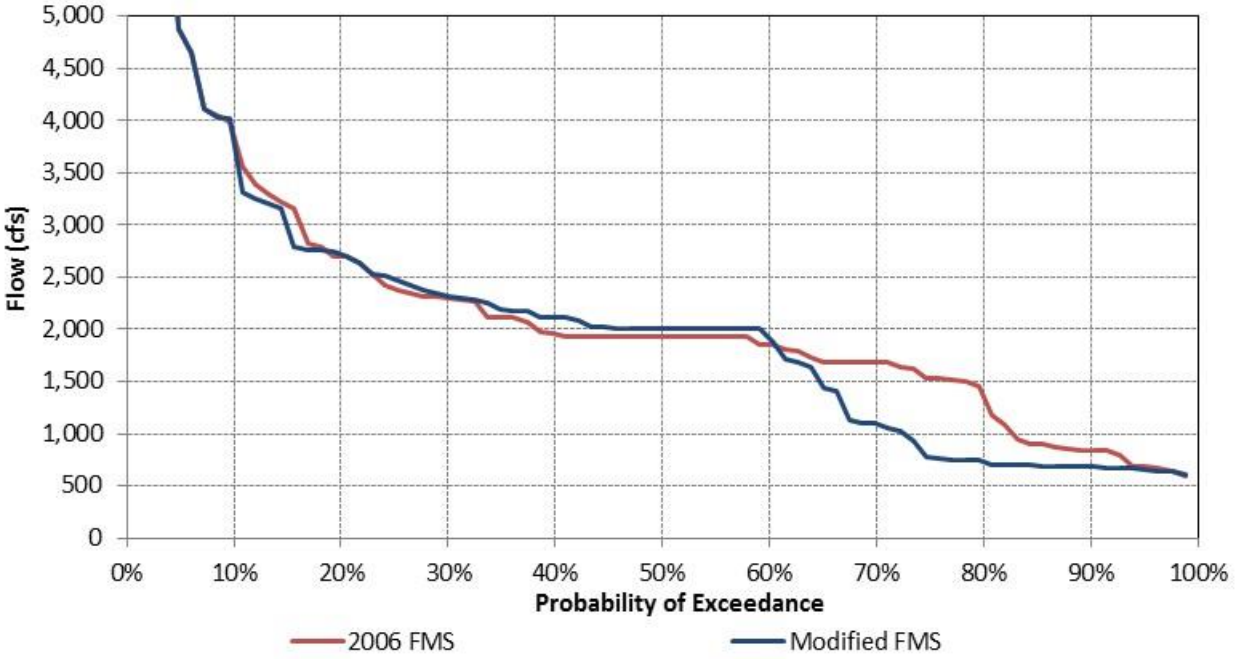


Figure 4.1-12. Comparison of Exceedance Probability for Simulated American River Flow Below Nimbus Dam for November.

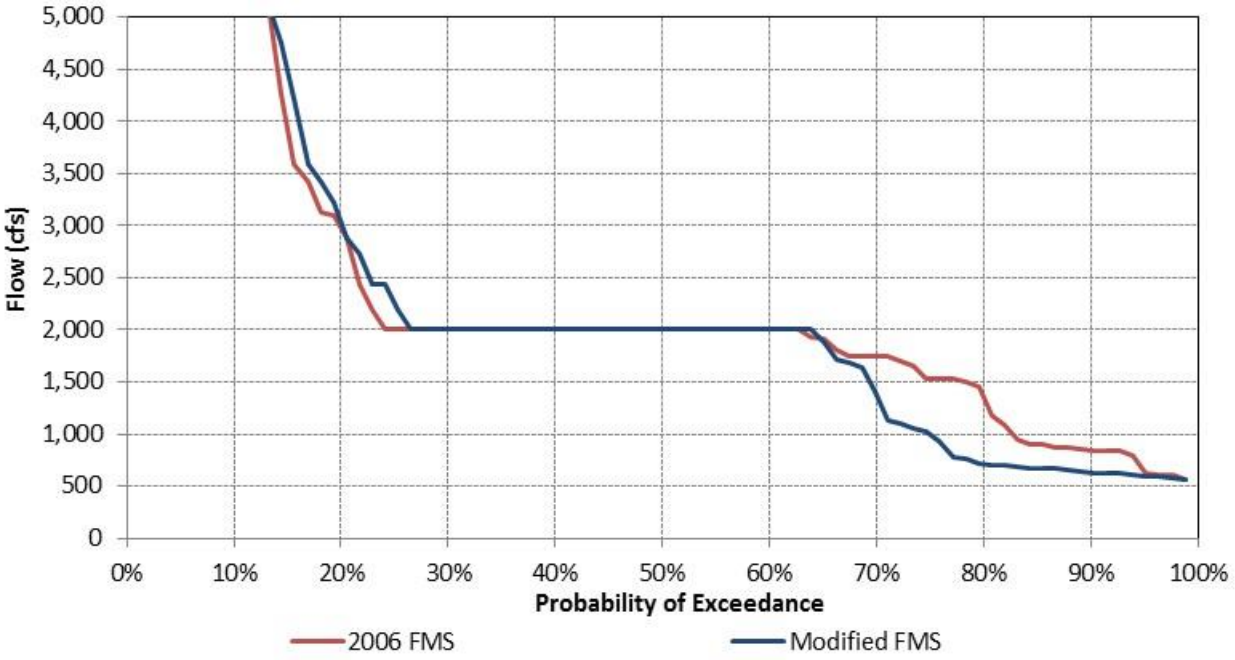


Figure 4.1-13. Comparison of Exceedance Probability for Simulated American River Flow Below Nimbus Dam for December.

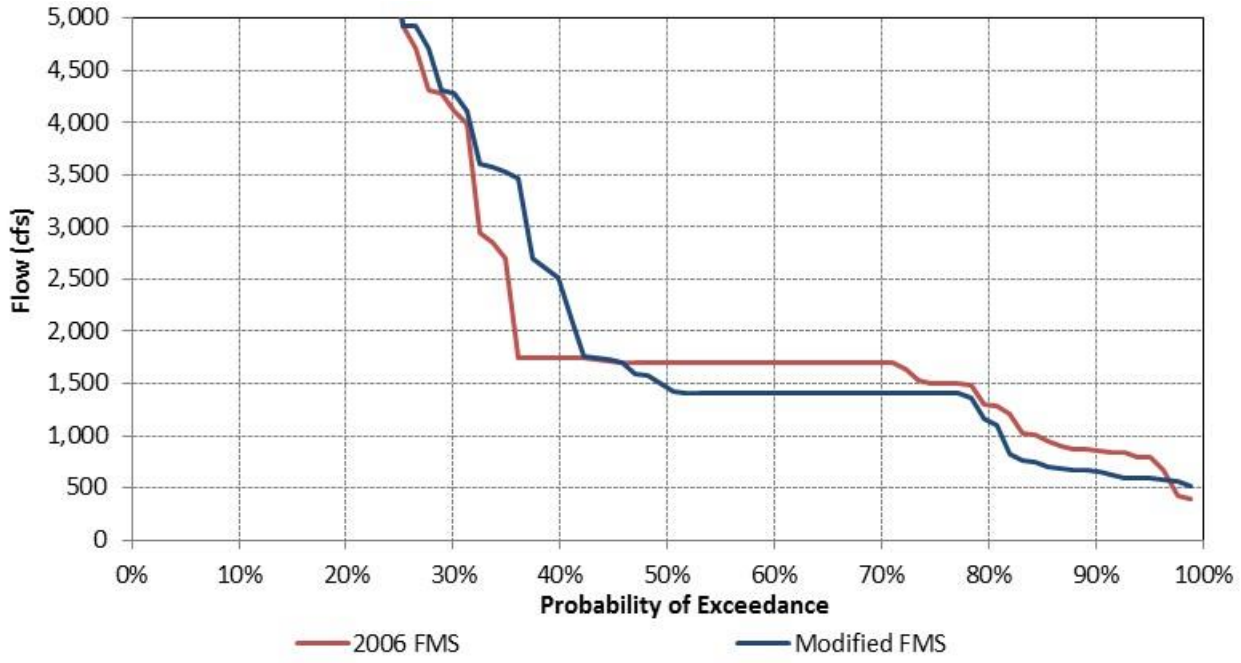


Figure 4.1-14. Comparison of Exceedance Probability for Simulated American River Flow Below Nimbus Dam for January.

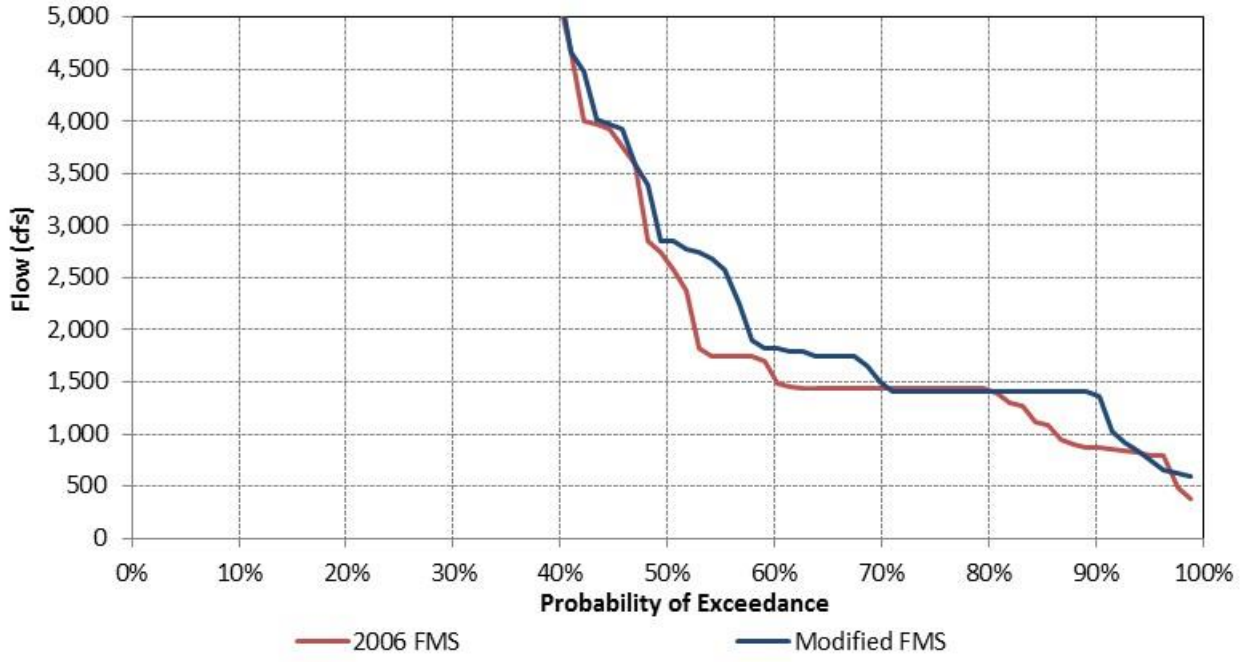


Figure 4.1-15. Comparison of Exceedance Probability for Simulated American River Flow Below Nimbus Dam for February.

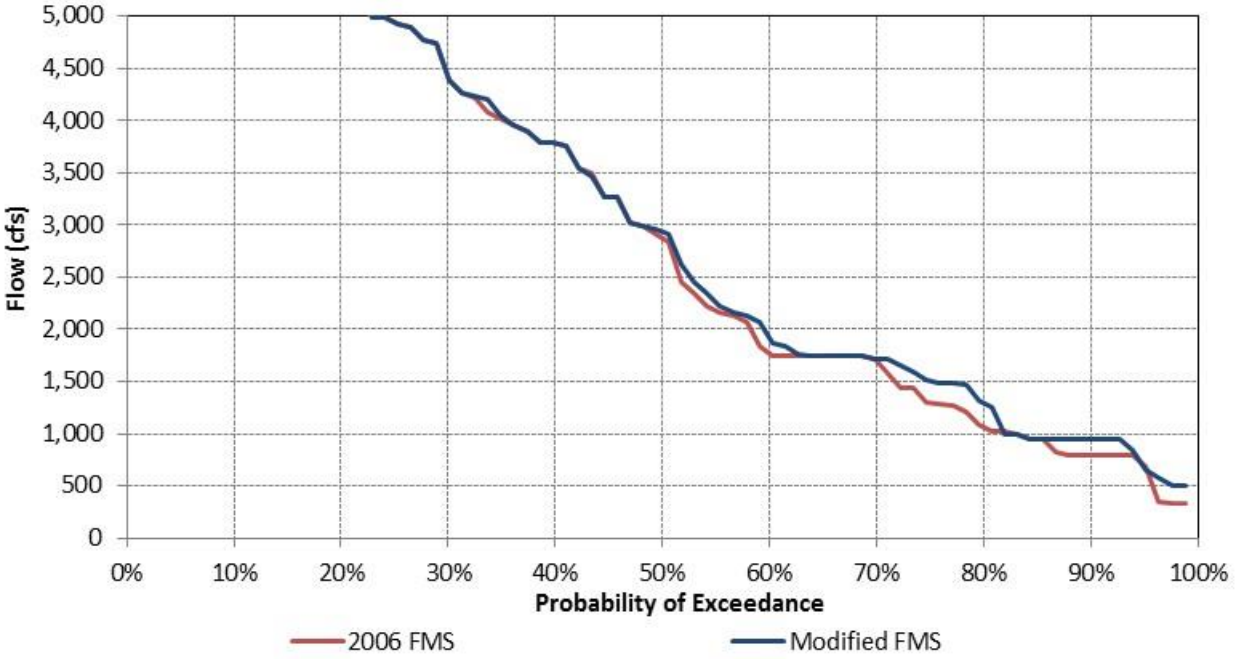


Figure 4.1-16. Comparison of Exceedance Probability for Simulated American River Flow Below Nimbus Dam for March.

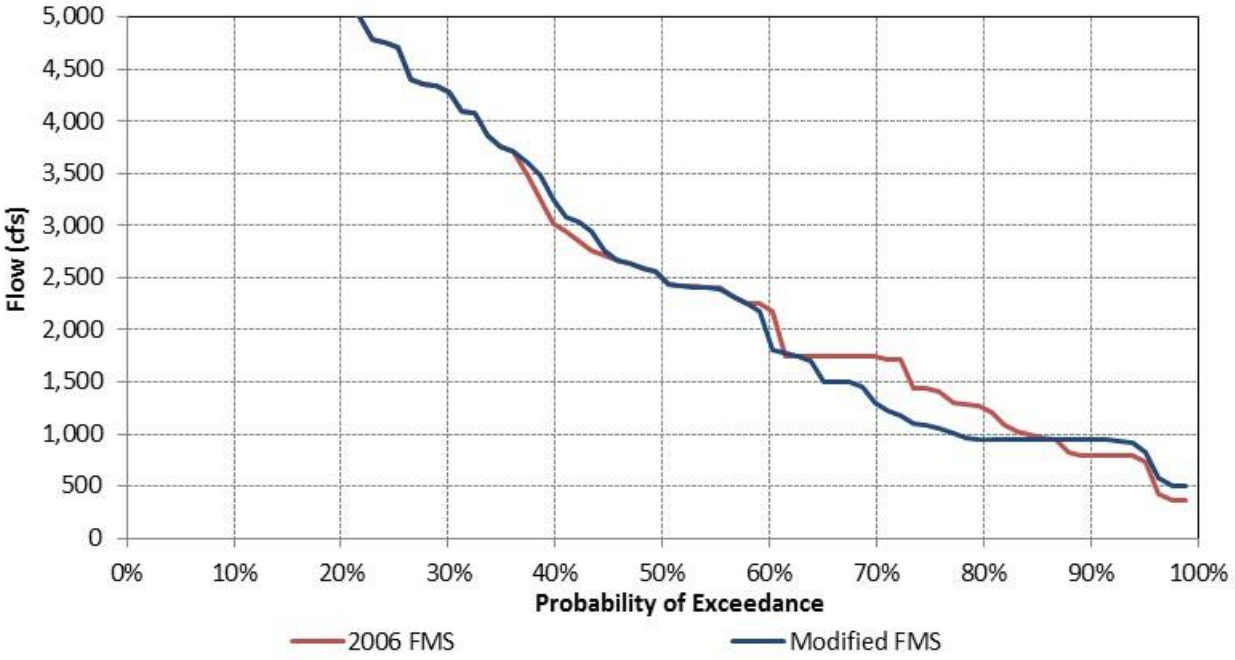


Figure 4.1-17. Comparison of Exceedance Probability for Simulated American River Flow Below Nimbus Dam for April.

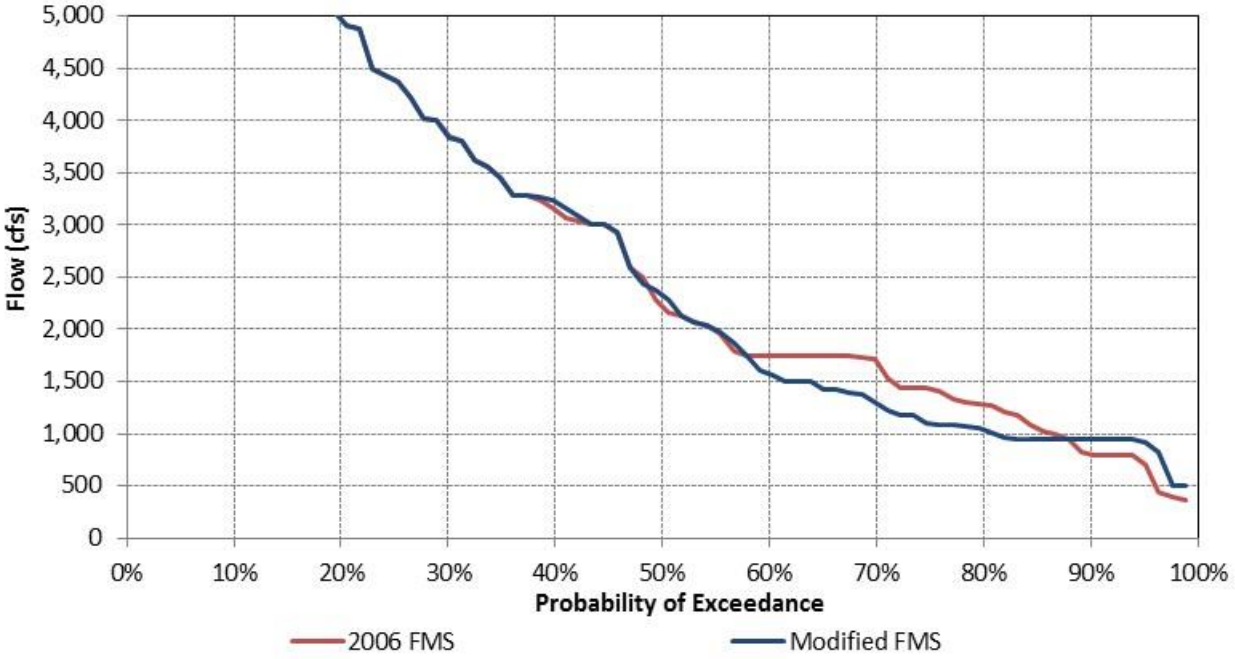


Figure 4.1-18. Comparison of Exceedance Probability for Simulated American River Flow Below Nimbus Dam for May.

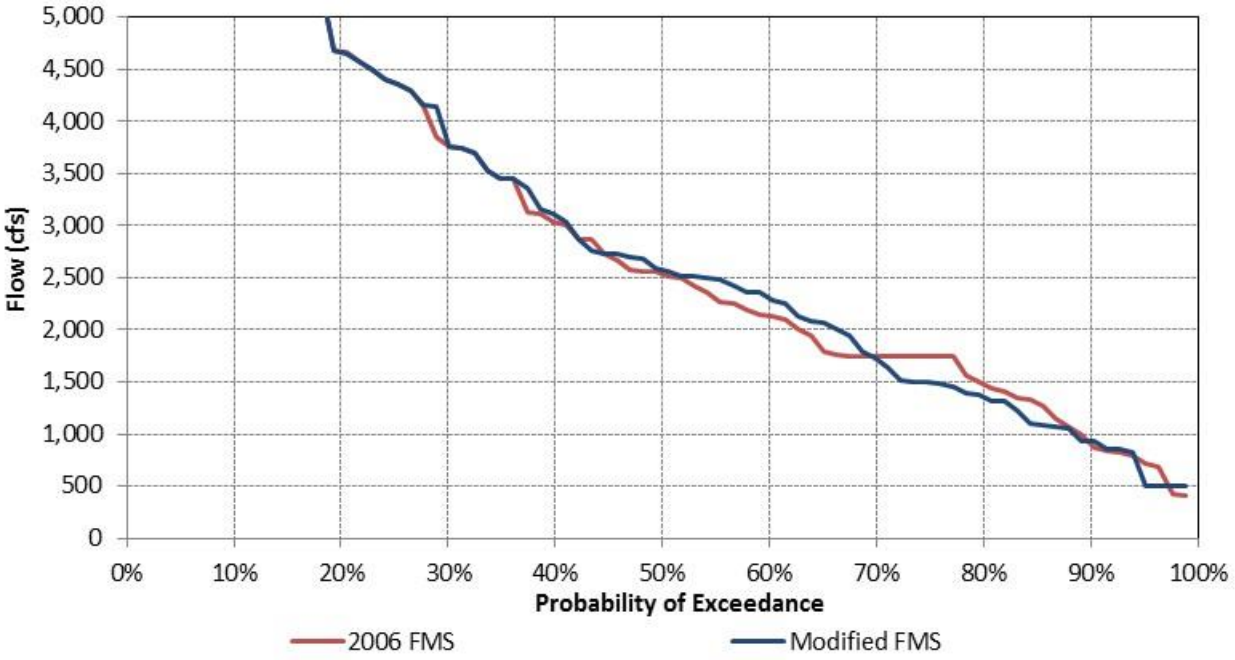


Figure 4.1-19. Comparison of Exceedance Probability for Simulated American River Flow Below Nimbus Dam for June.

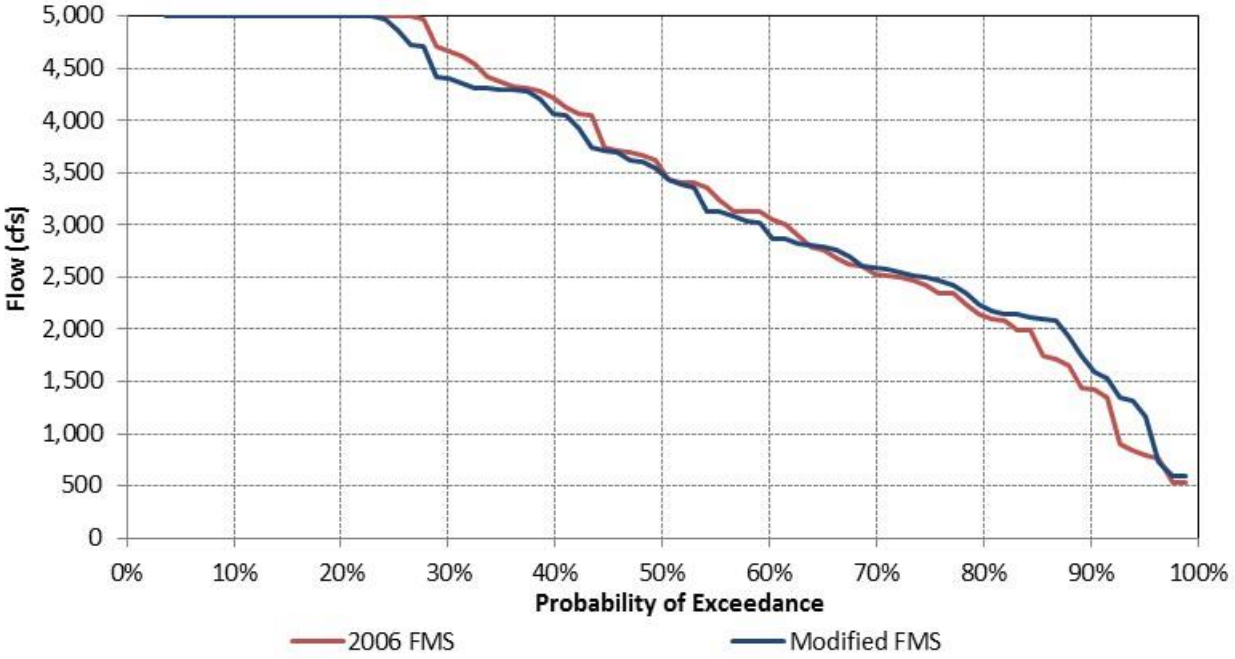


Figure 4.1-20. Comparison of Exceedance Probability for Simulated American River Below Nimbus Dam for July.

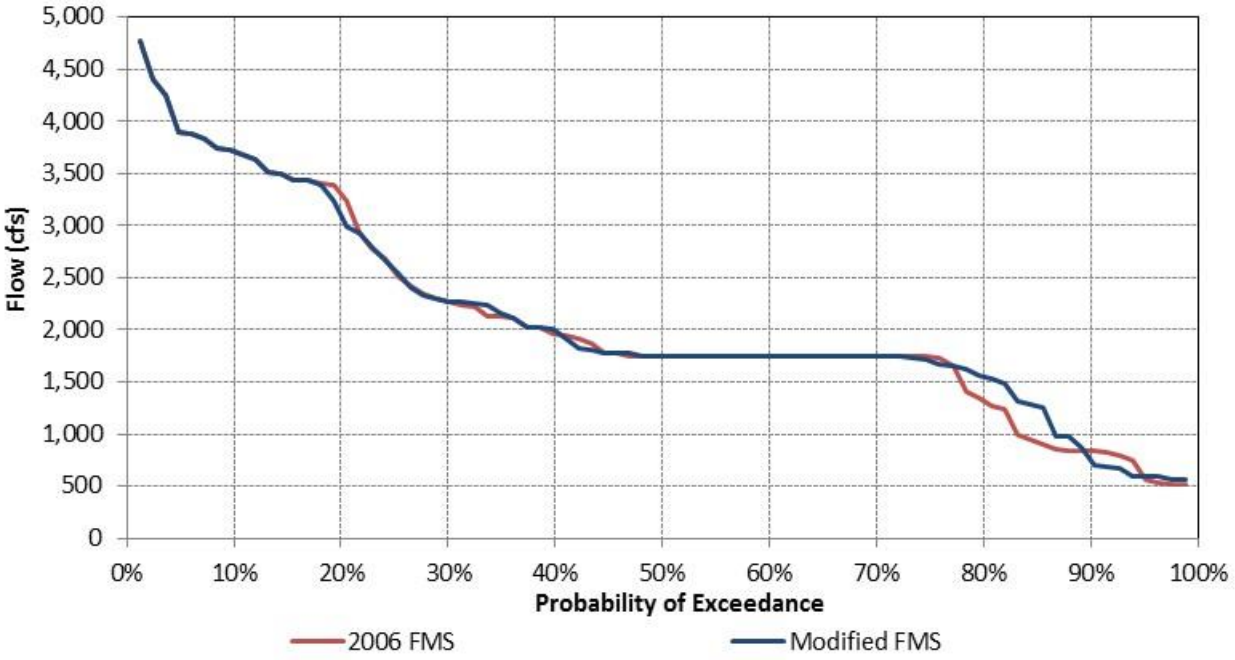


Figure 4.1-21. Comparison of Exceedance Probability for Simulated American River Flow Below Nimbus Dam for August.

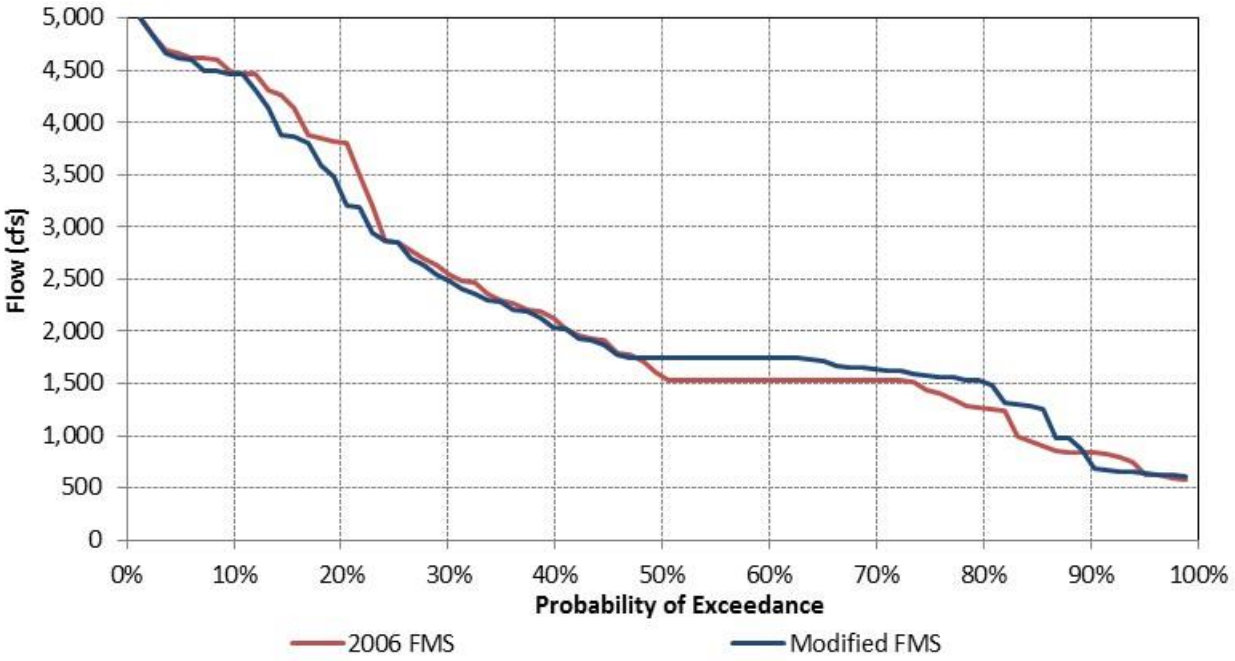


Figure 4.1-22. Comparison of Exceedance Probability for Simulated American River Below Nimbus Dam for September

4.2 SACRAMENTO RIVER MODEL RESULTS

Due to the integrated nature of the CVP, operational changes at Folsom Reservoir have the potential to affect Sacramento River operations, including imports to the Sacramento River watershed from the Trinity River watershed. This section includes model results for Sacramento River water resources, including Shasta and Trinity reservoir storage, Sacramento River flows below Keswick, and imports from the Trinity River watershed via the Clear Creek Tunnel. The following results from CalSim II (flow and storage) and the Sacramento River Water Temperature Model (water temperatures and cold water pool volumes).

Simulated water temperatures in the Sacramento River are presented in Attachment F to the *Biological Rationale, Development and Performance of the Modified Flow Management Standard.*

4.2.1 Shasta Reservoir Storage

This section provides model results for simulated Shasta Reservoir storage from CalSim II, represented by the solid lines, and the simulated volume of Shasta Reservoir storage 49°F or colder, representing Shasta Reservoir's cold-water pool from the Sacramento River Water Temperature Model, represented by the dashed lines, for selected months in Figures 4.2-1 through 4.2-3. Attachment A includes tables of monthly output for all months for Shasta Reservoir storage for the 2006 FMS and Modified FMS, and the differences in storage between the two runs.

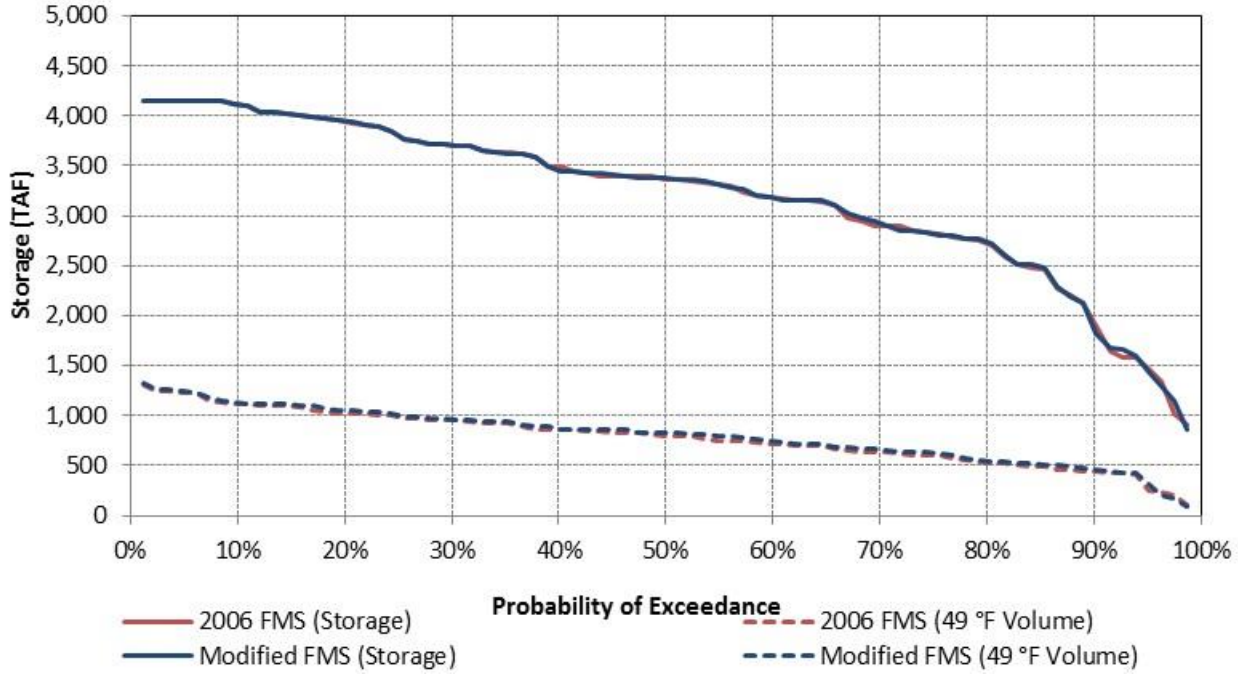


Figure 4.2-1. Comparison of Exceedance Probability for Simulated Shasta Reservoir Storage and Volume of Storage Less than 49°F in July

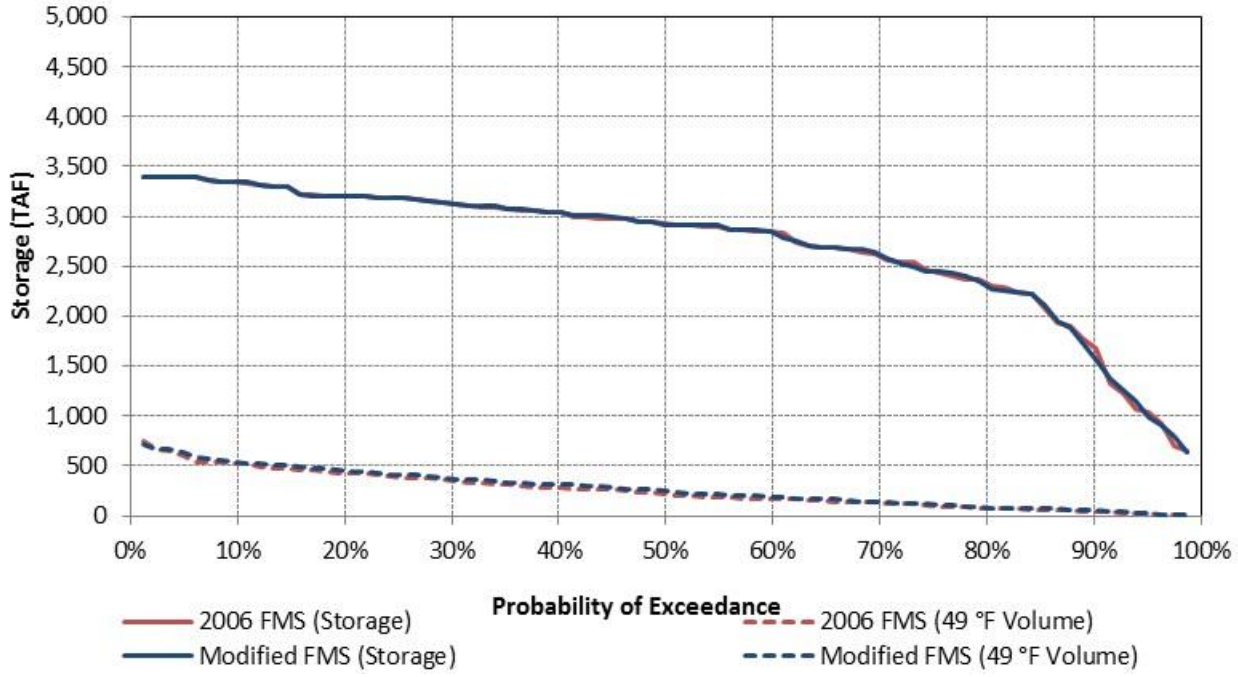


Figure 4.2-2. Comparison of Exceedance Probability for Simulated Shasta Reservoir Storage and Volume of Storage Less than 49°F in September

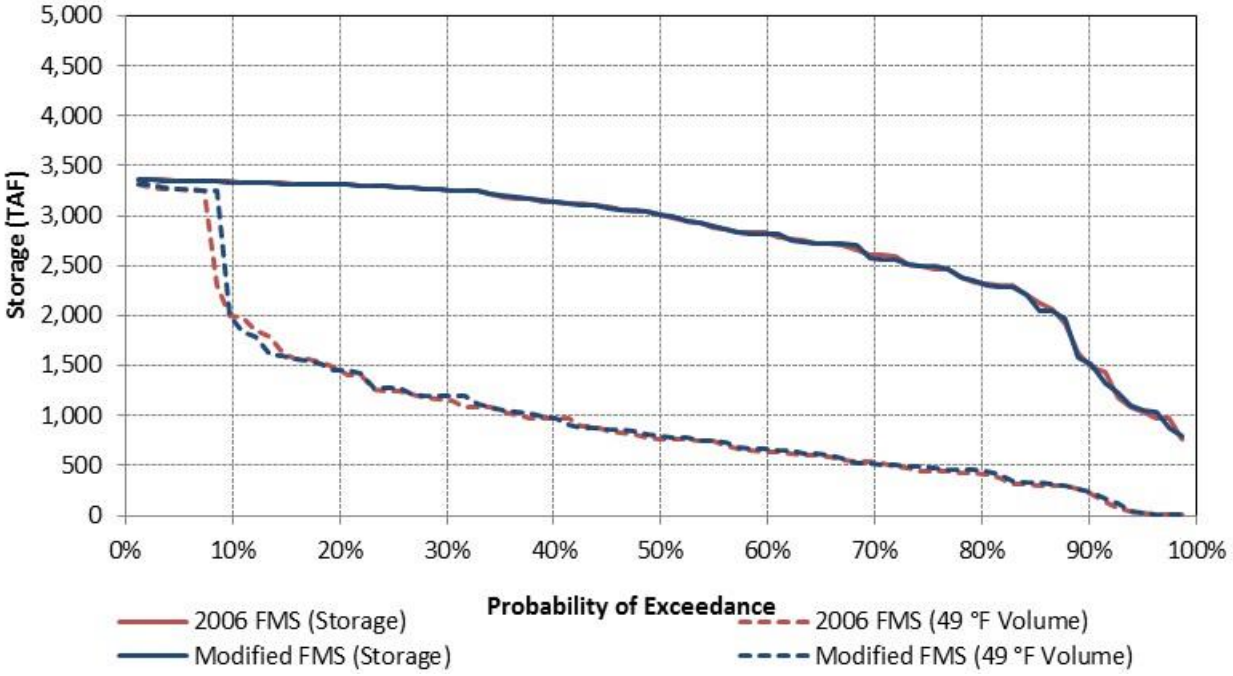


Figure 4.2-3. Comparison of Exceedance Probability for Simulated Shasta Reservoir Storage and Volume of Storage Less than 49°F in December

Figures 4.2-4 through 4.2-12 show a comparison of the end-of-month Shasta Reservoir storage by year. Each year is represented across the x-axis. Changes in storage for each month are shown as well in the upper portion of the figure, with change values reflected on the secondary y-axis. A positive change indicates the Modified FMS is higher than the 2006 FMs, a negative change indicates the 2006 FMS is higher than the Modified FMS.

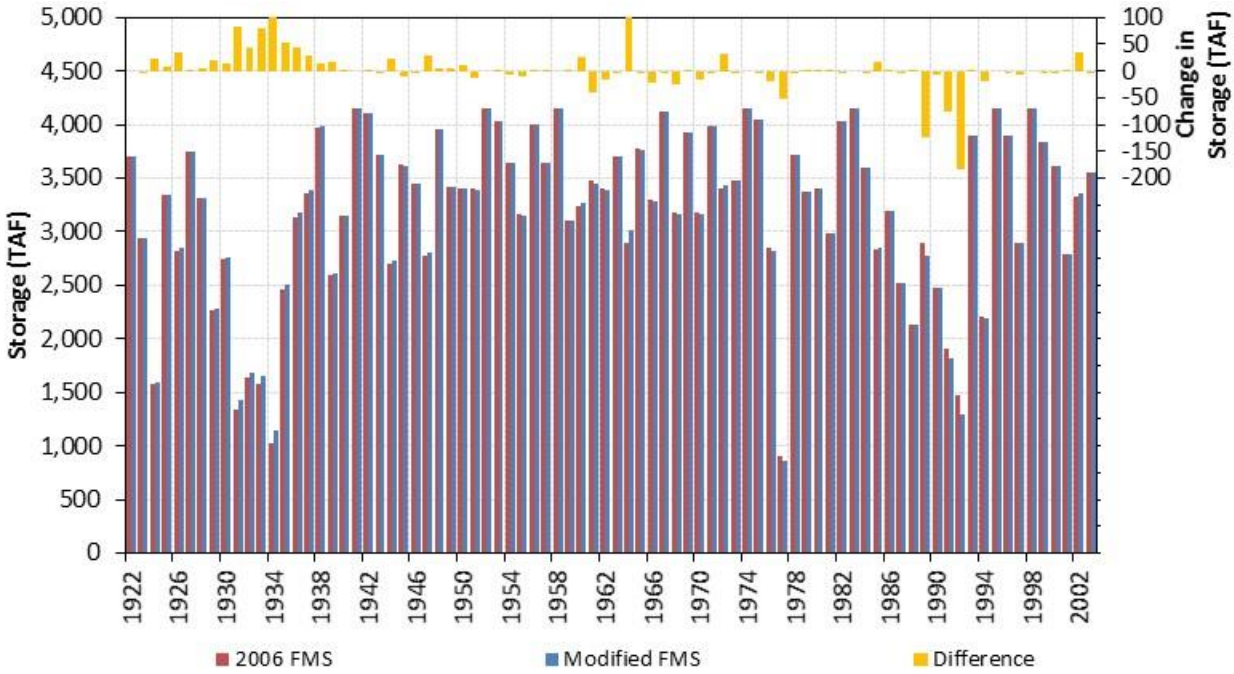


Figure 4.2-4. Year-to-Year Comparison of Simulated End-of-July Shasta Reservoir Storage

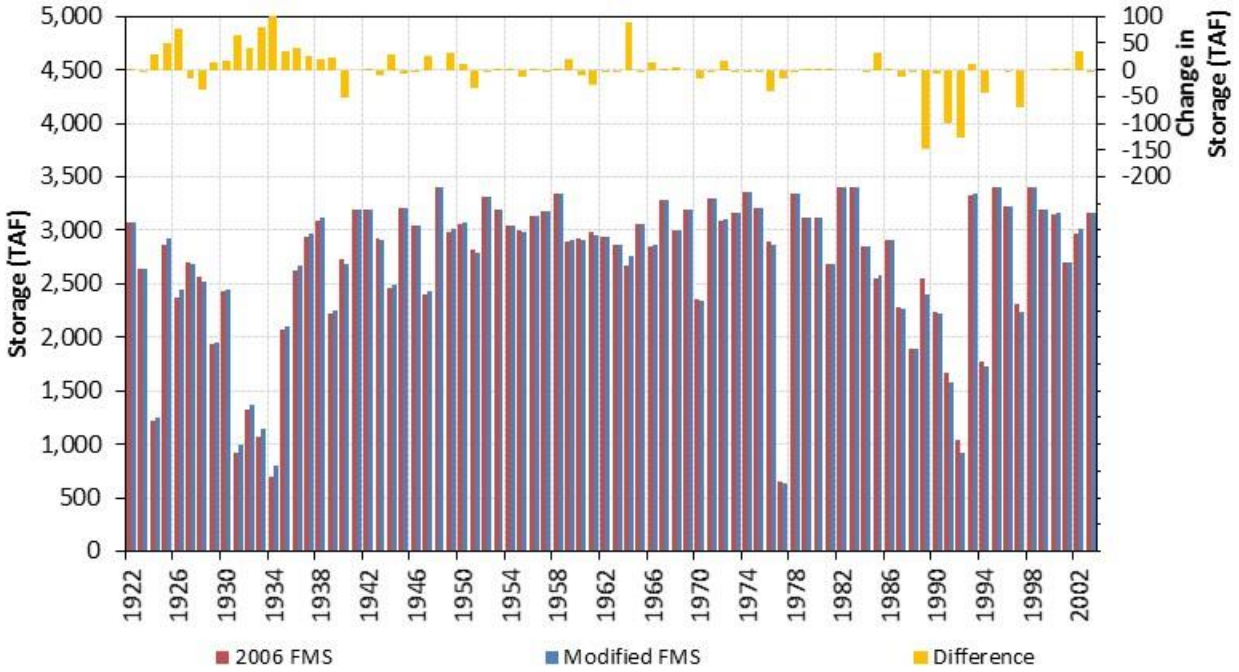


Figure 4.2-5. Year-to-Year Comparison of Simulated End-of-September Shasta Reservoir Storage

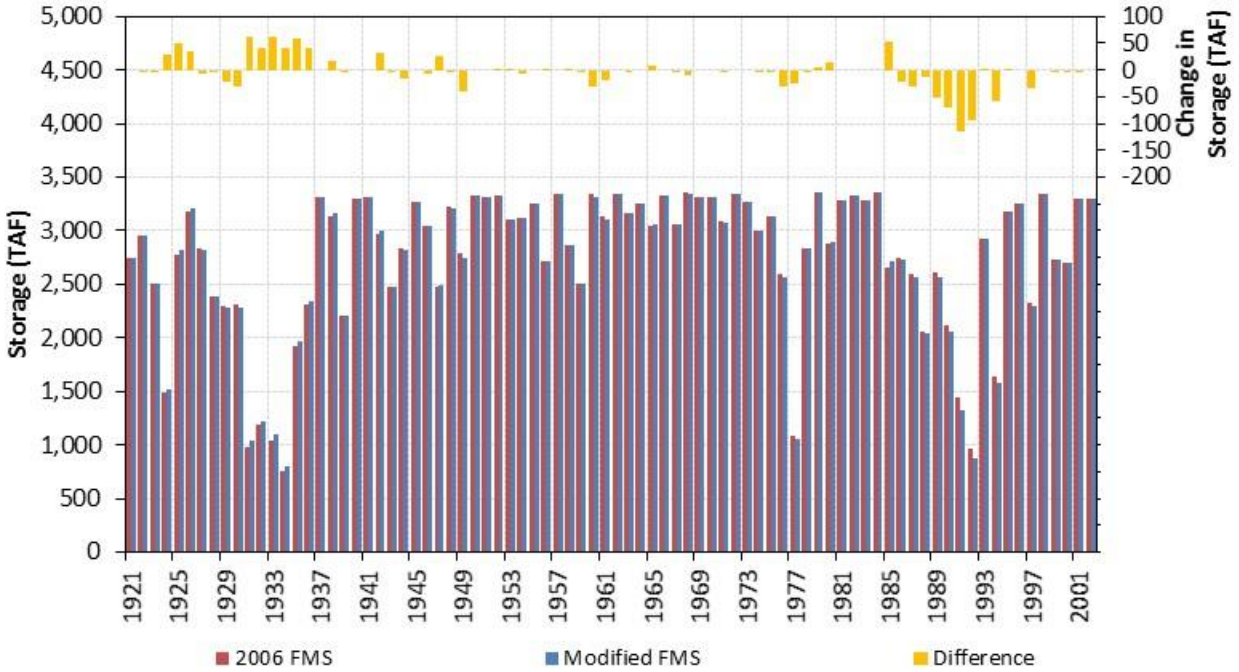


Figure 4.2-6. Year-to-Year Comparison of Simulated End-of-December Shasta Reservoir Storage

4.2.2 Shasta Reservoir Cold Water Pool Volume

In its final temperature plan for 2016 (Reclamation 2016), Reclamation identified the volume of water less than 49°F in Shasta Reservoir as a surrogate to track overall cold water pool volume. Accordingly, Figures 4.2-7 and 4.2-8 show the volume of water 49°F or colder in Shasta Reservoir, by year, for selected months. Each year is represented across the x-axis. Changes in storage for each month are shown in the upper portion of the figure, with change values reflected

on the secondary y-axis. A positive change indicates the Modified FMS is higher than the 2006 FMs, a negative change indicates the 2006 FMS is higher than the Modified FMS.

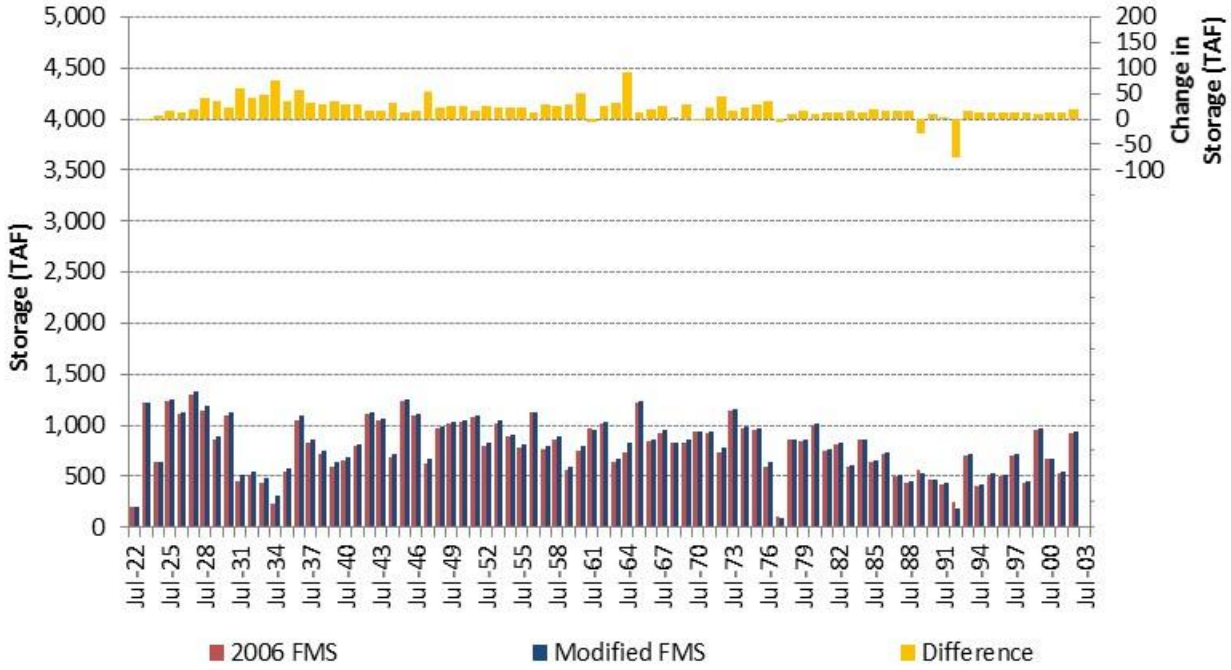


Figure 4.2-7. Year-to-Year Comparison of Simulated End-of-July Shasta Reservoir Cold Water Pool Storage

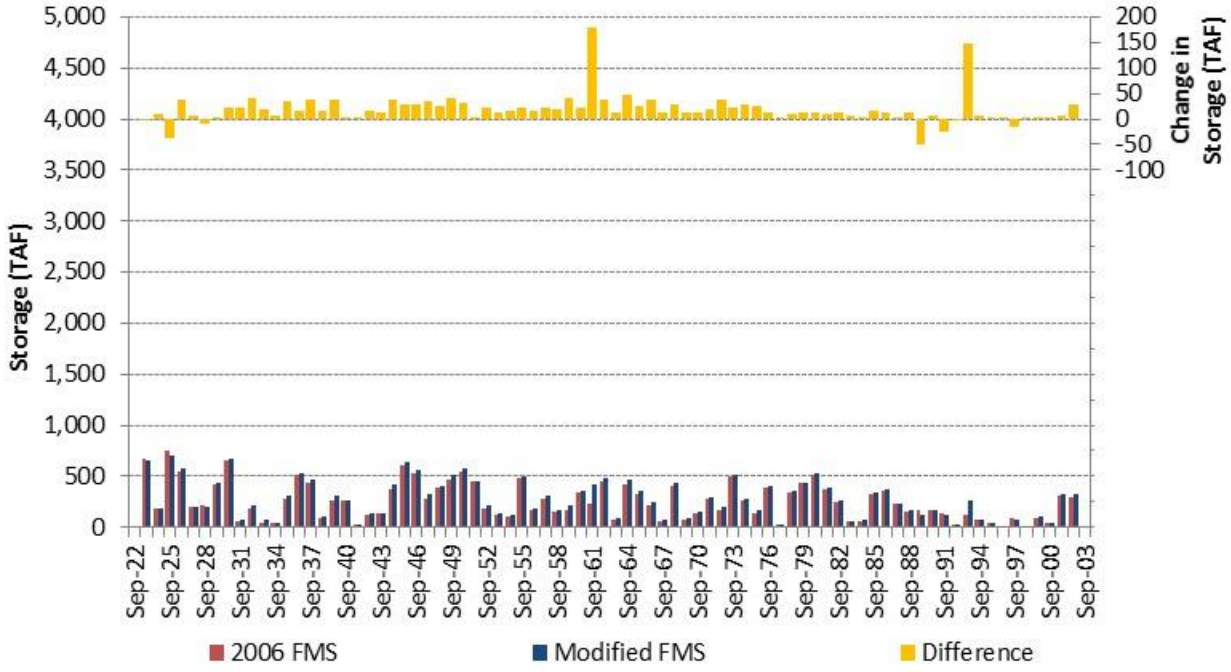


Figure 4.2-8. Year-to-Year Comparison of Simulated End-of-September Shasta Reservoir Cold Water Pool Storage

4.2.3 Trinity Reservoir Storage

Figures 4.2-9 through 4.2-11 show comparisons of selected CalSim II output for end-of-month Trinity Reservoir storages. Attachment A includes tables of monthly output for all months for Trinity Reservoir storage for the 2006 FMS and Modified FMS, and the differences in storage between the two runs.

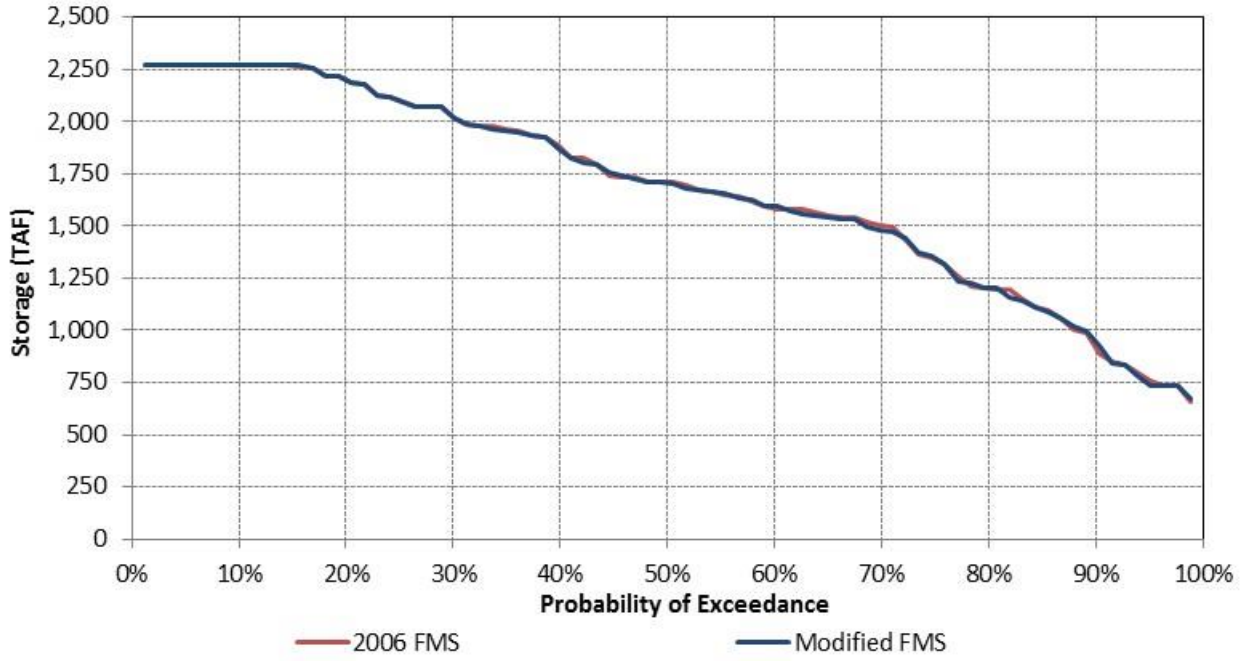


Figure 4.2-9. Comparison of Exceedance Probability for Simulated Trinity Reservoir Storage in July

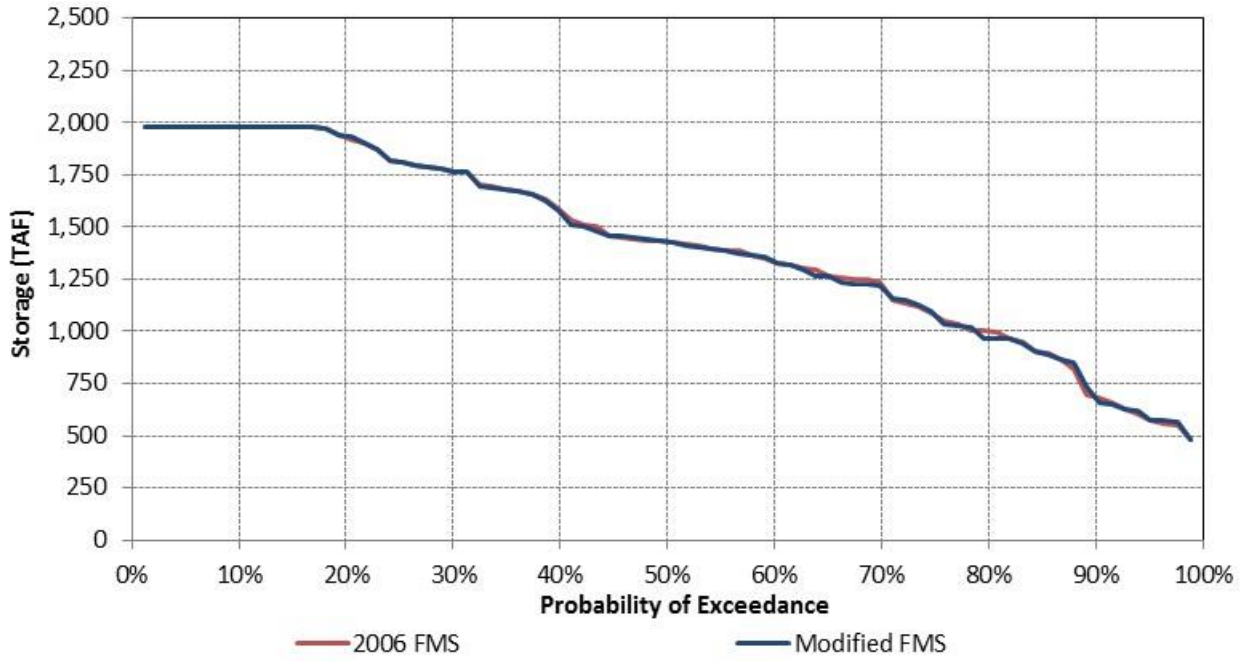


Figure 4.2-10. Comparison of Exceedance Probability for Simulated Trinity Reservoir Storage in September

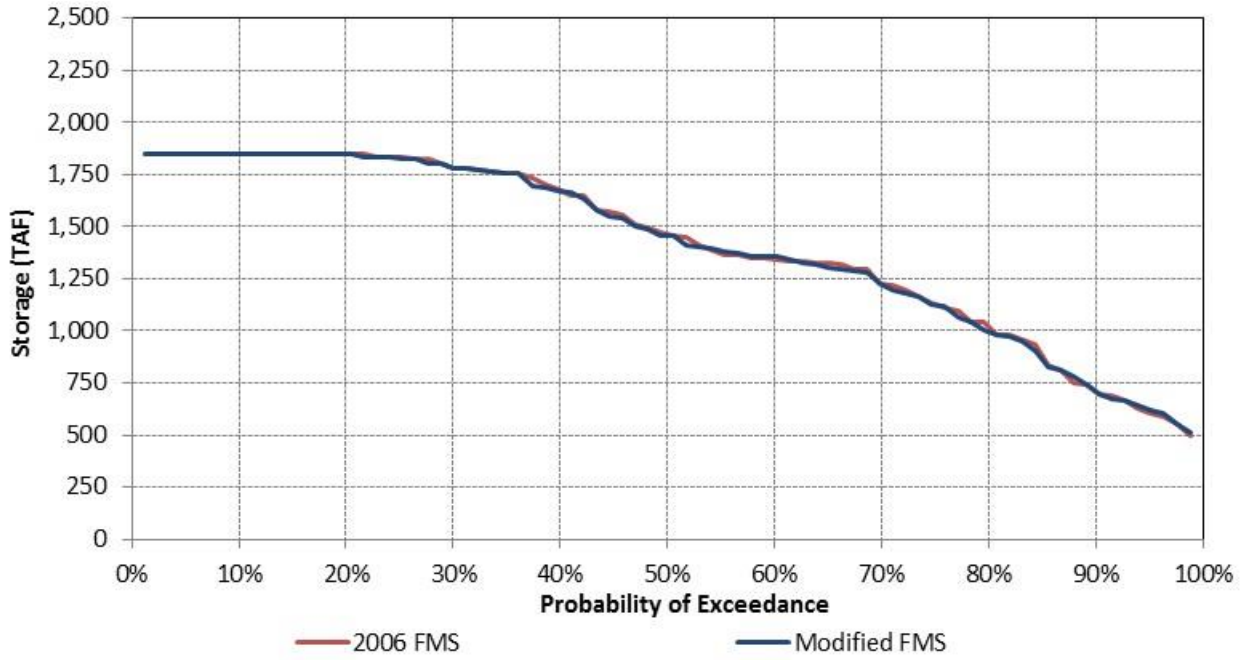


Figure 4.2-11. Comparison of Exceedance Probability for Simulated Trinity Reservoir Storage in December

Figures 4.2-12 through 4.2-14 show the volume of water in Trinity Reservoir, by year, for selected months. Each year is represented across the x-axis. Changes in storage for each month are shown in the upper portion of the figure, with change values reflected on the secondary y-

axis. A positive change indicates the Modified FMS is higher than the 2006 FMs, a negative change indicates the 2006 FMS is higher than the Modified FMS.

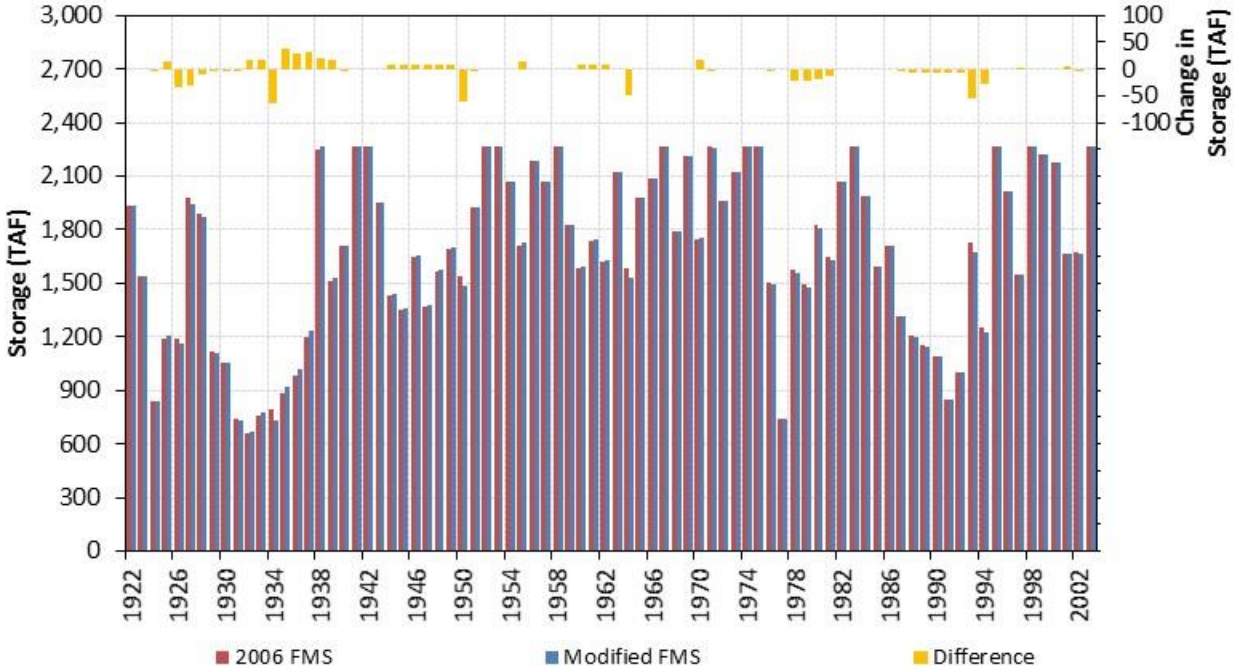


Figure 4.2-12. Year-to-Year Comparison of Simulated End-of-July Trinity Reservoir Storage

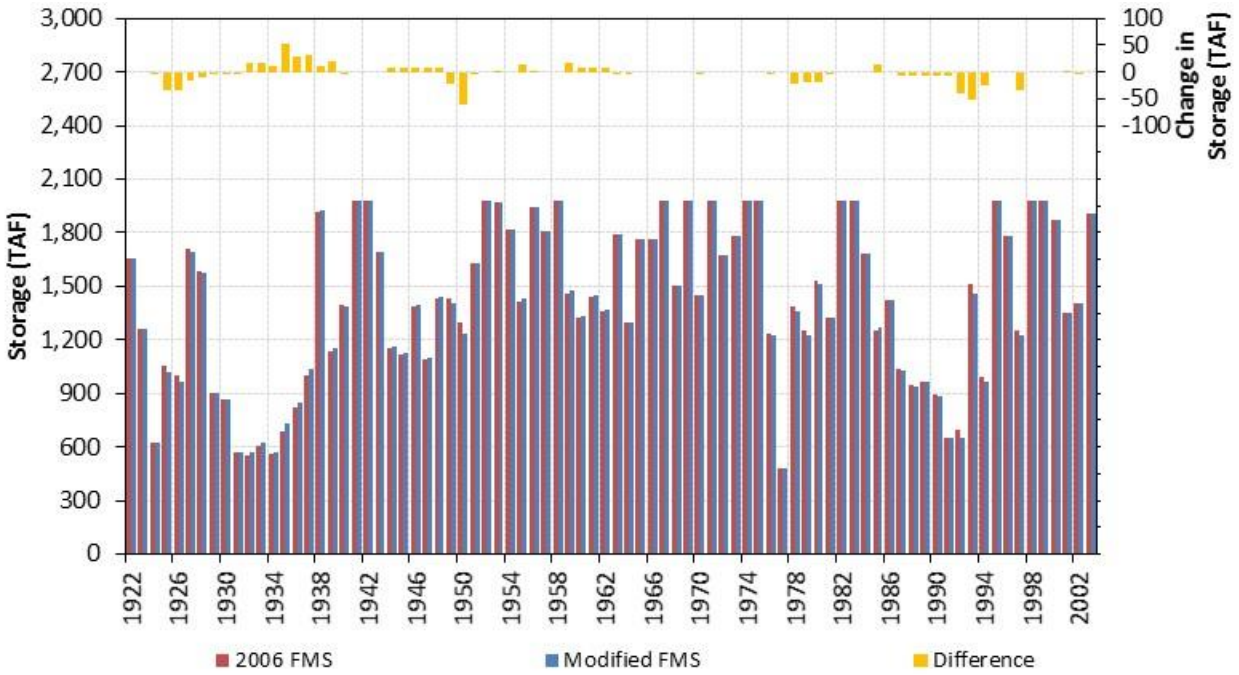


Figure 4.2-12. Year-to-Year Comparison of Simulated End-of-September Trinity Reservoir Storage

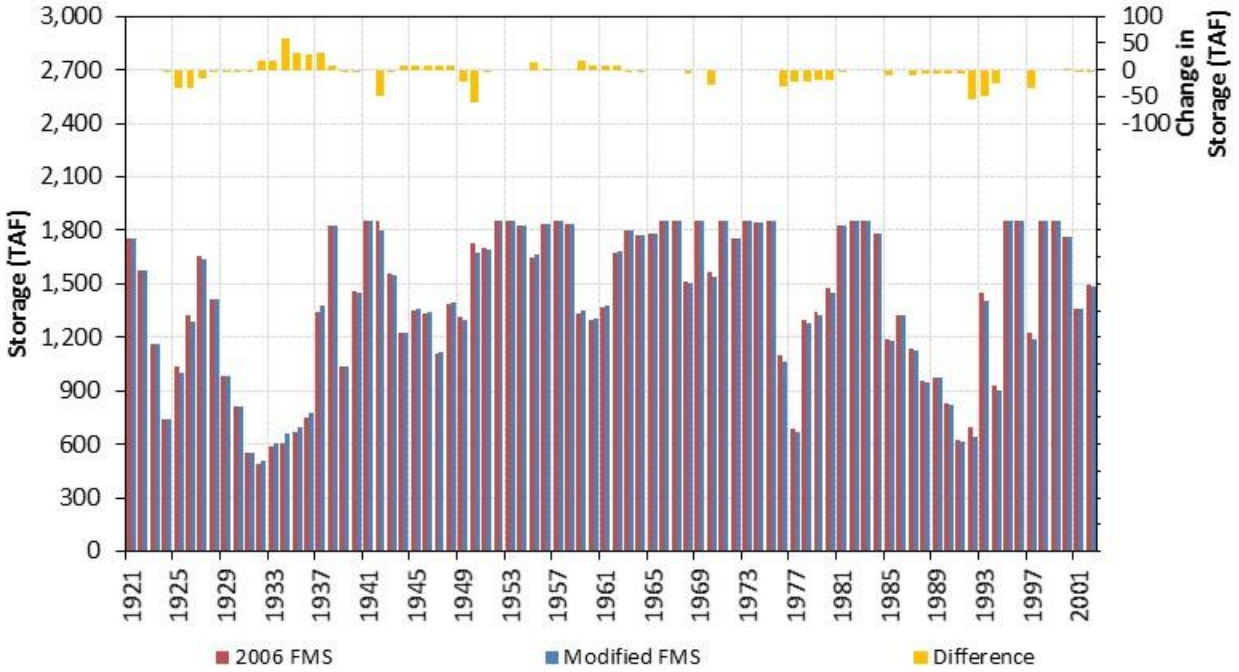


Figure 4.2-12. Year-to-Year Comparison of Simulated End-of-December Trinity Reservoir Storage

4.2.4 Sacramento River Flow Below Keswick Dam

This section provides model results for simulated Sacramento River Flow below Keswick Dam from CalSim II for selected months in Figures 4.2-13 through 4.2-18.

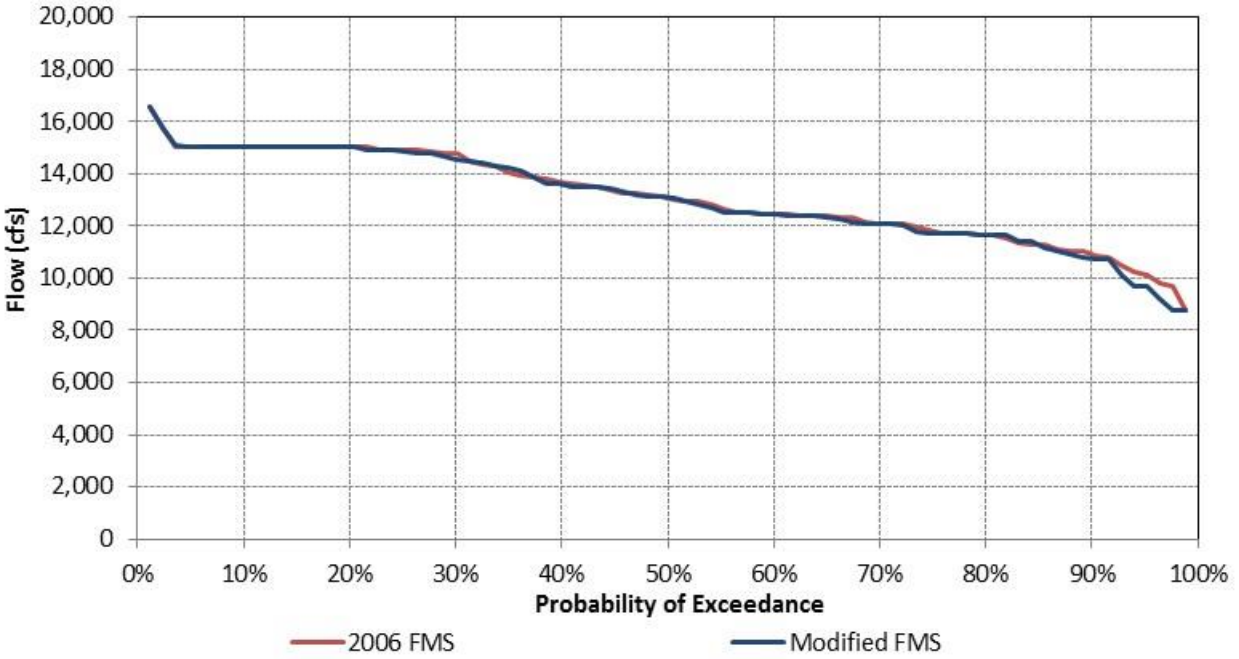


Figure 4.2-13. Comparison of Exceedance Probability for Simulated Sacramento River Flow Below Keswick Dam in July

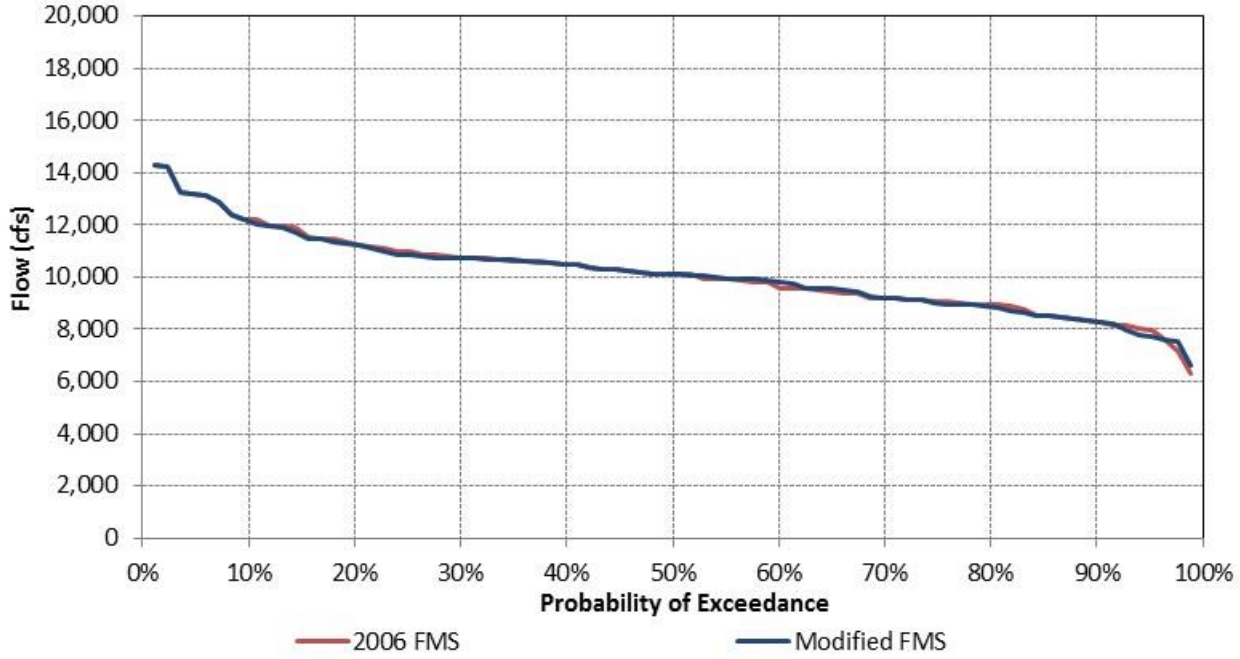


Figure 4.2-14. Comparison of Exceedance Probability for Simulated Sacramento River Flow Below Keswick Dam in August

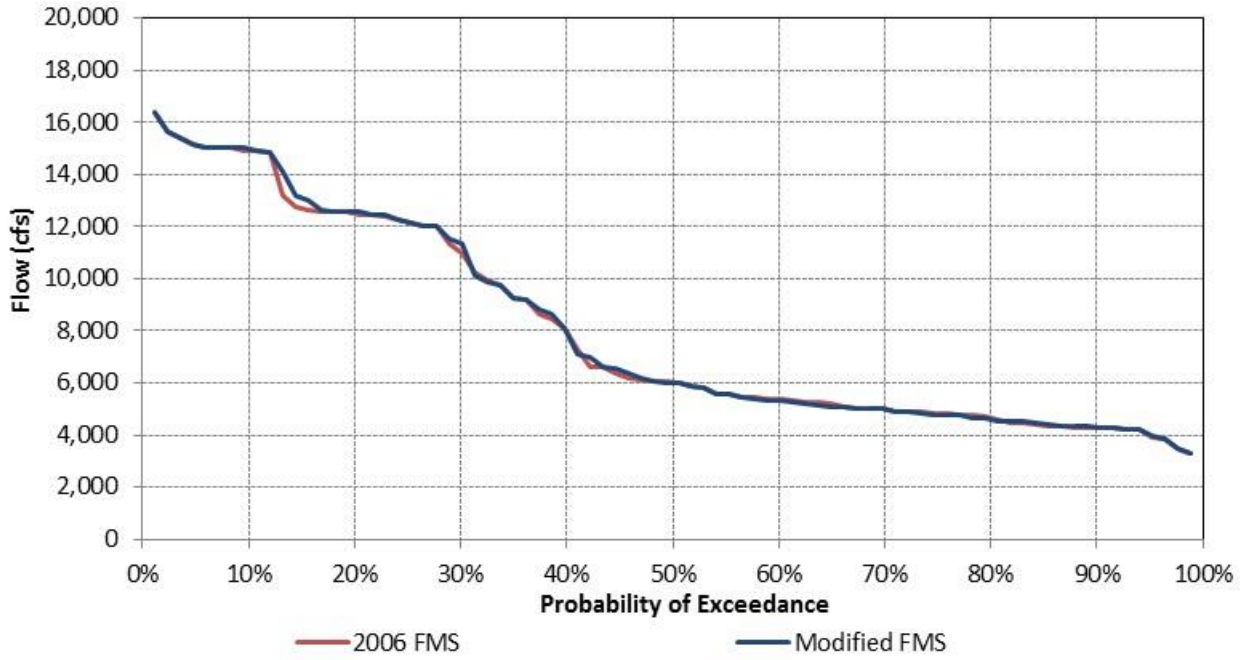


Figure 4.2-15. Comparison of Exceedance Probability for Simulated Sacramento River Flow Below Keswick Dam in September

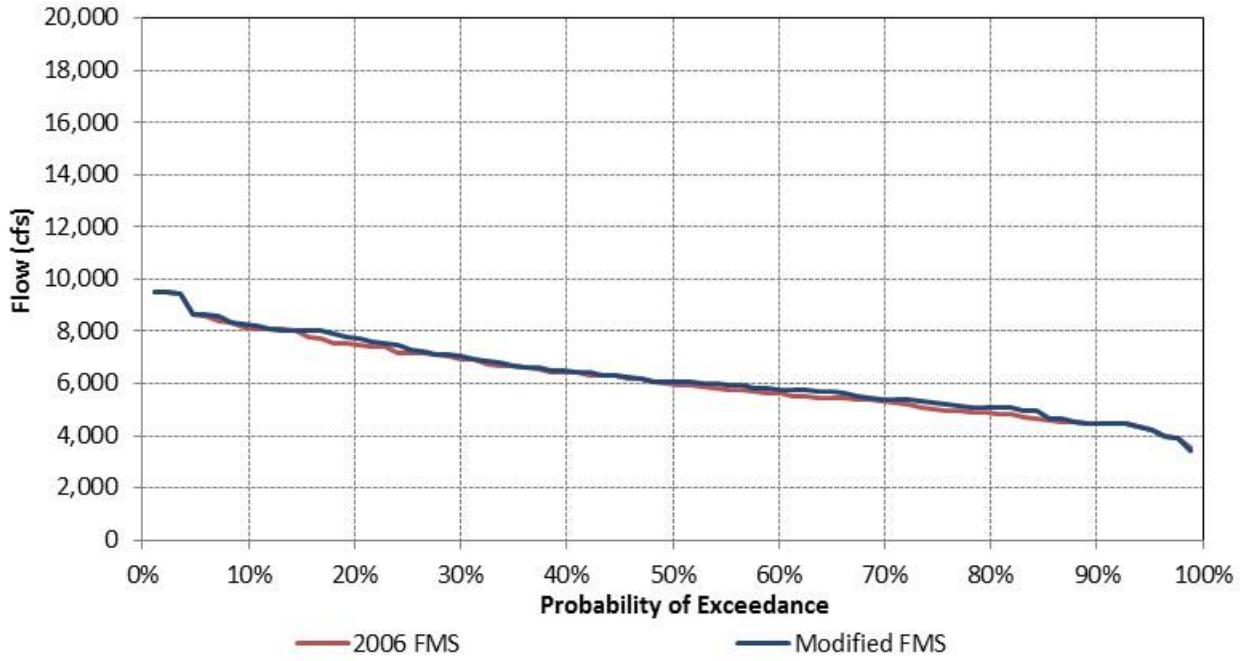


Figure 4.2-16. Comparison of Exceedance Probability for Simulated Sacramento River Flow Below Keswick Dam in October

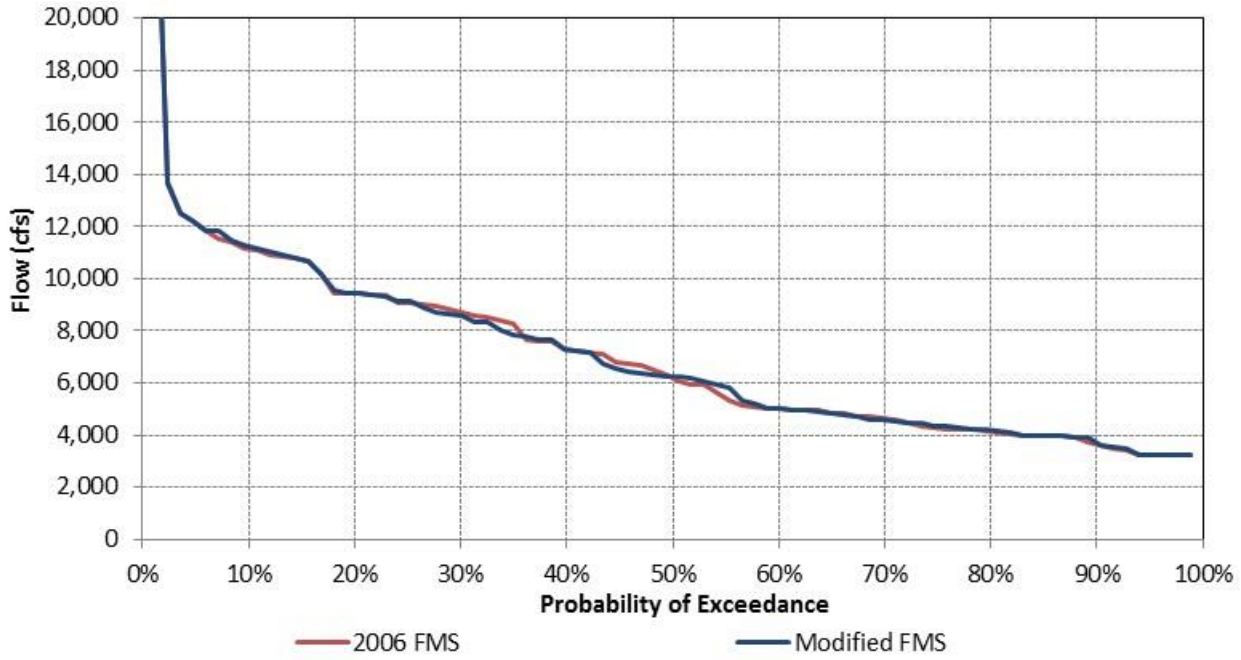


Figure 4.2-17. Comparison of Exceedance Probability for Simulated Sacramento River Flow Below Keswick Dam in November

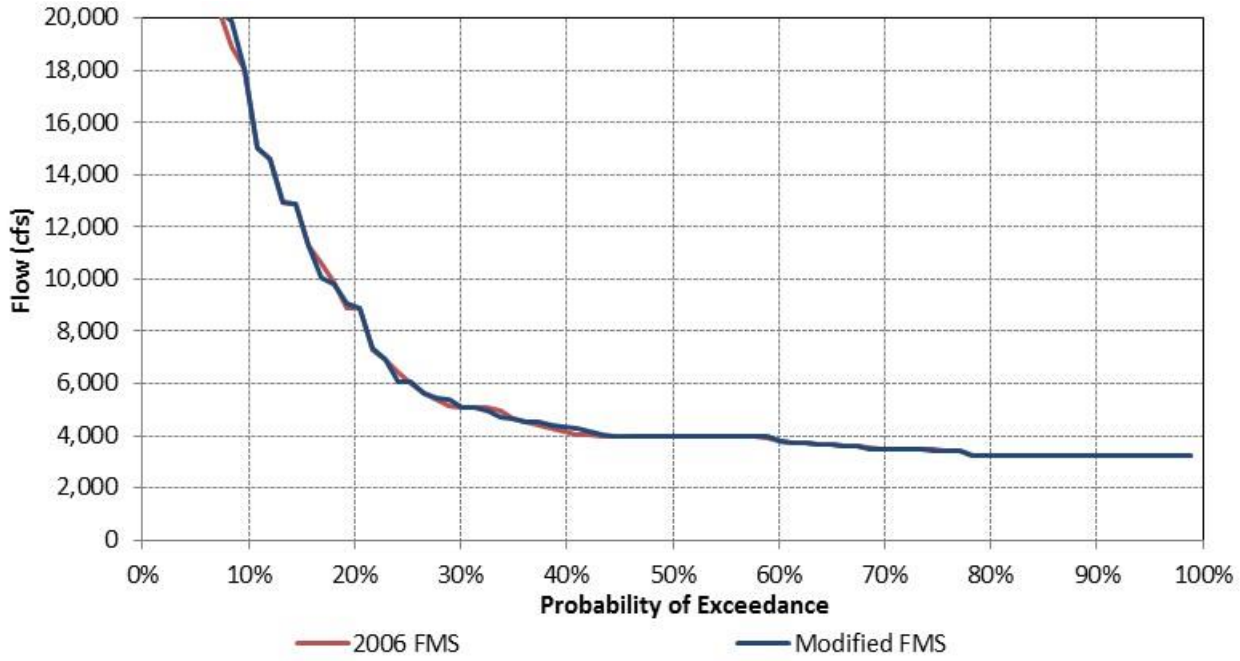


Figure 4.2-18. Comparison of Exceedance Probability for Simulated Sacramento River Flow Below Keswick Dam in December

4.2.5 Trinity River Imports to Sacramento River Watershed

CalSim II simulates imports to the Sacramento River watershed through the Clear Creek Tunnel from the Trinity River at Lewiston Dam. Figures 4.2-19 through 4.2-24 show comparisons of simulated Clear Creek Tunnel flow for selected months.

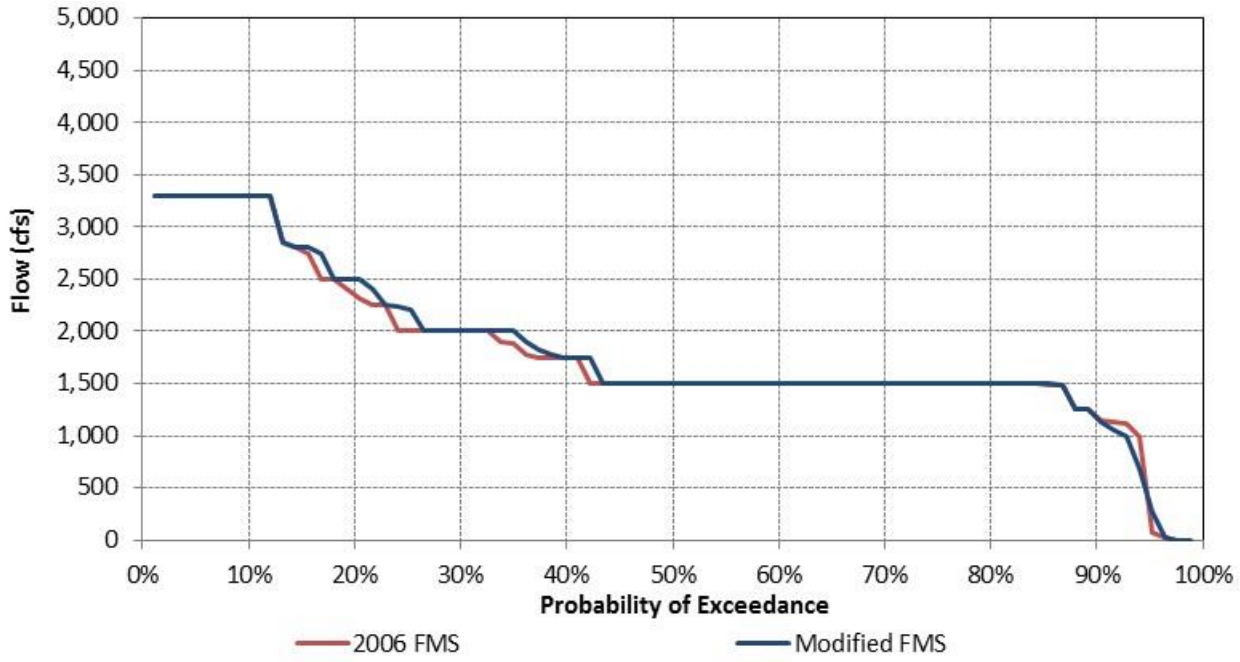


Figure 4.2-19. Comparison of Exceedance Probability for Simulated Trinity River Imports through the Clear Creek Tunnel in July

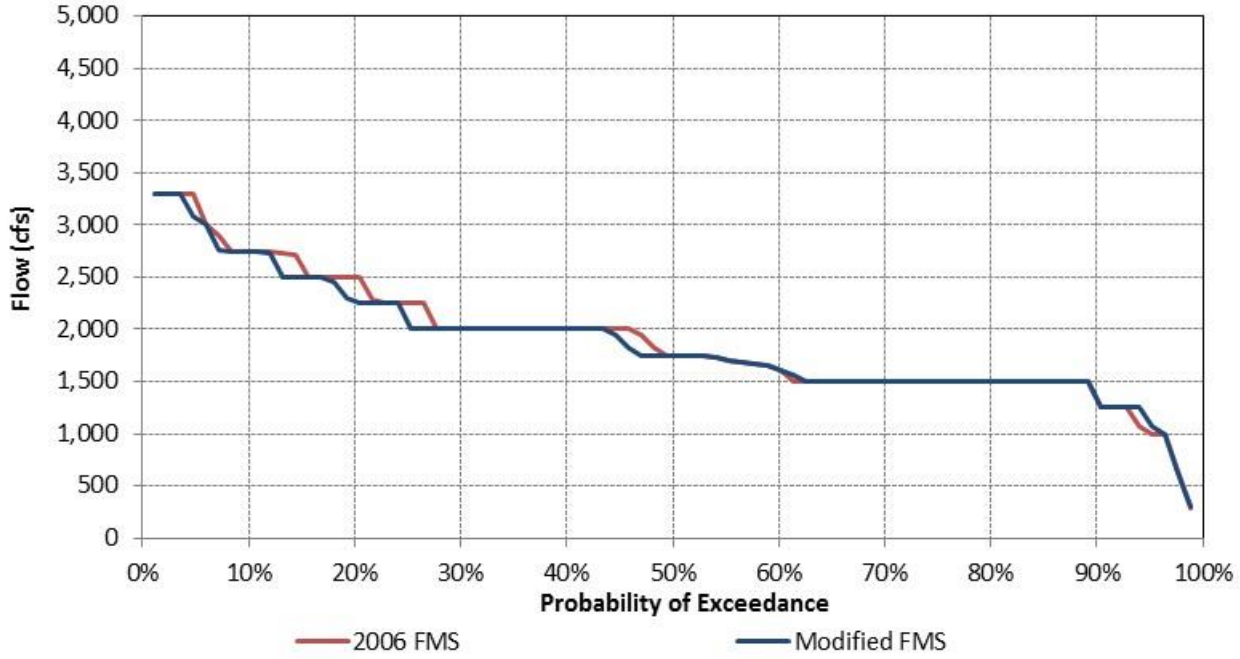


Figure 4.2-20. Comparison of Exceedance Probability for Simulated Trinity River Imports through the Clear Creek Tunnel in August

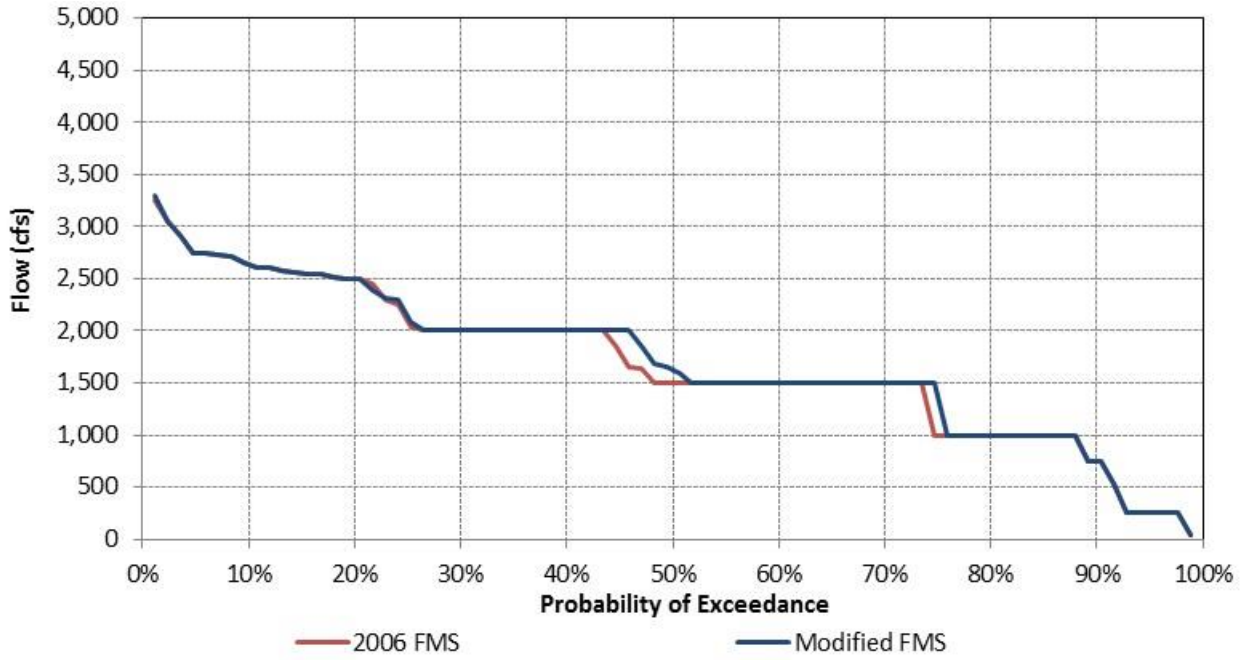


Figure 4.2-21. Comparison of Exceedance Probability for Simulated Trinity River Imports through the Clear Creek Tunnel in September

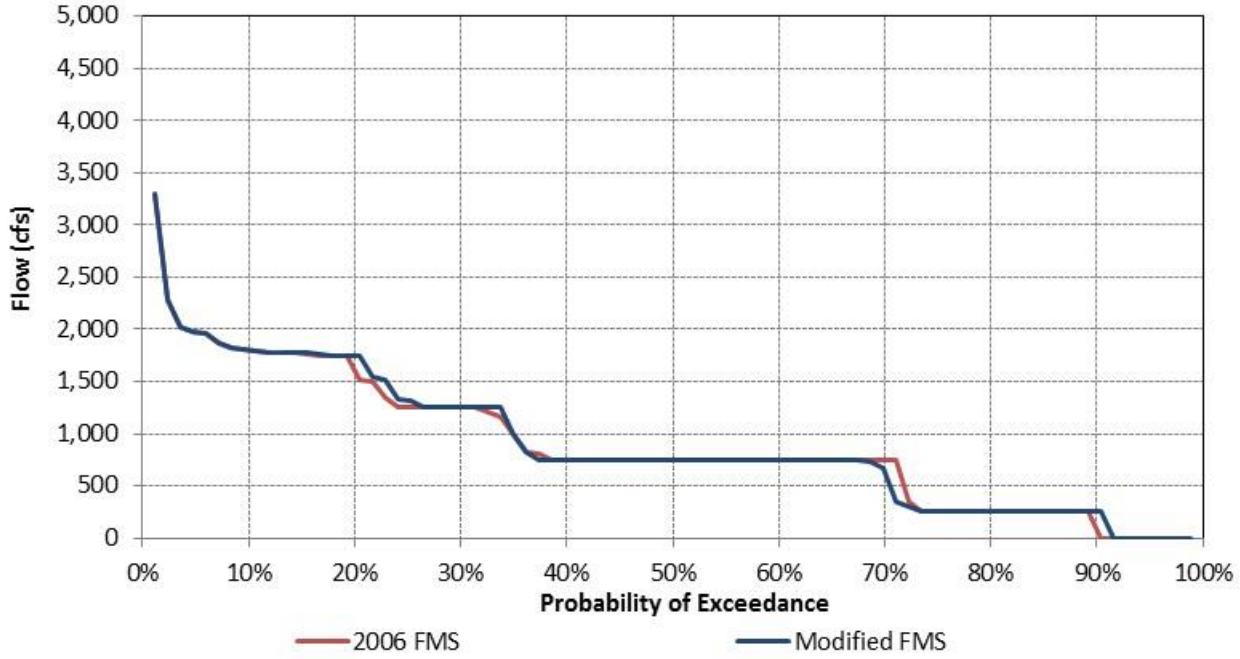


Figure 4.2-22. Comparison of Exceedance Probability for Simulated Trinity River Imports through the Clear Creek Tunnel in October

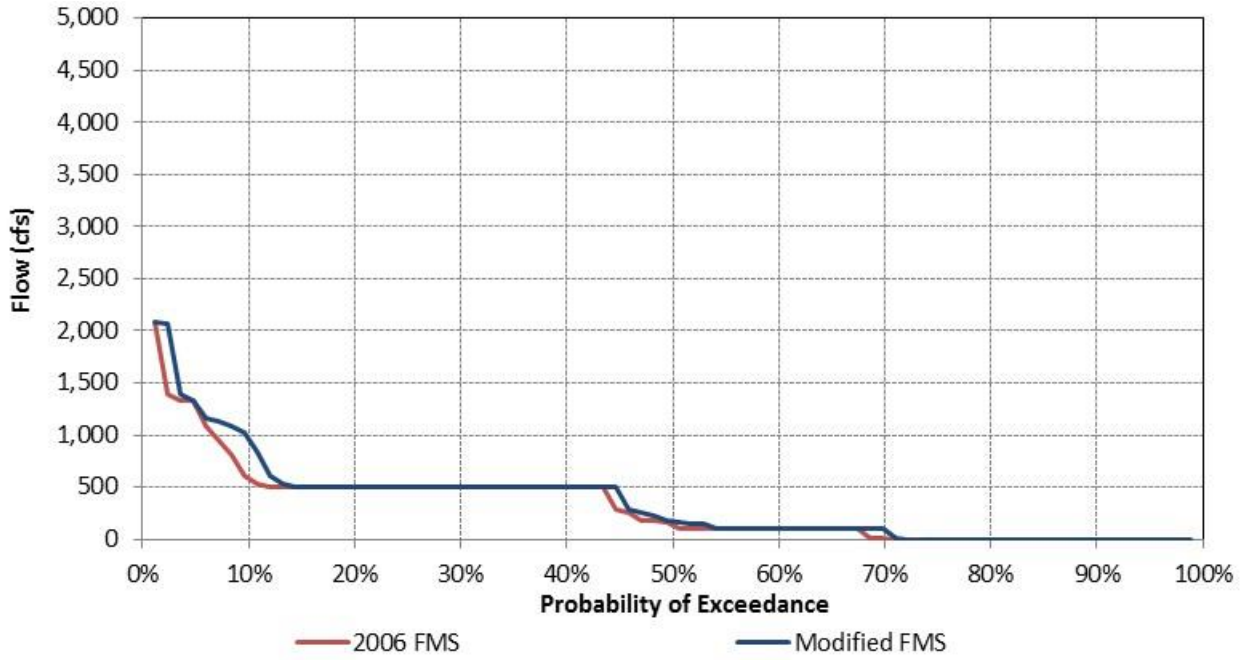


Figure 4.2-23. Comparison of Exceedance Probability for Simulated Trinity River Imports through the Clear Creek Tunnel in November

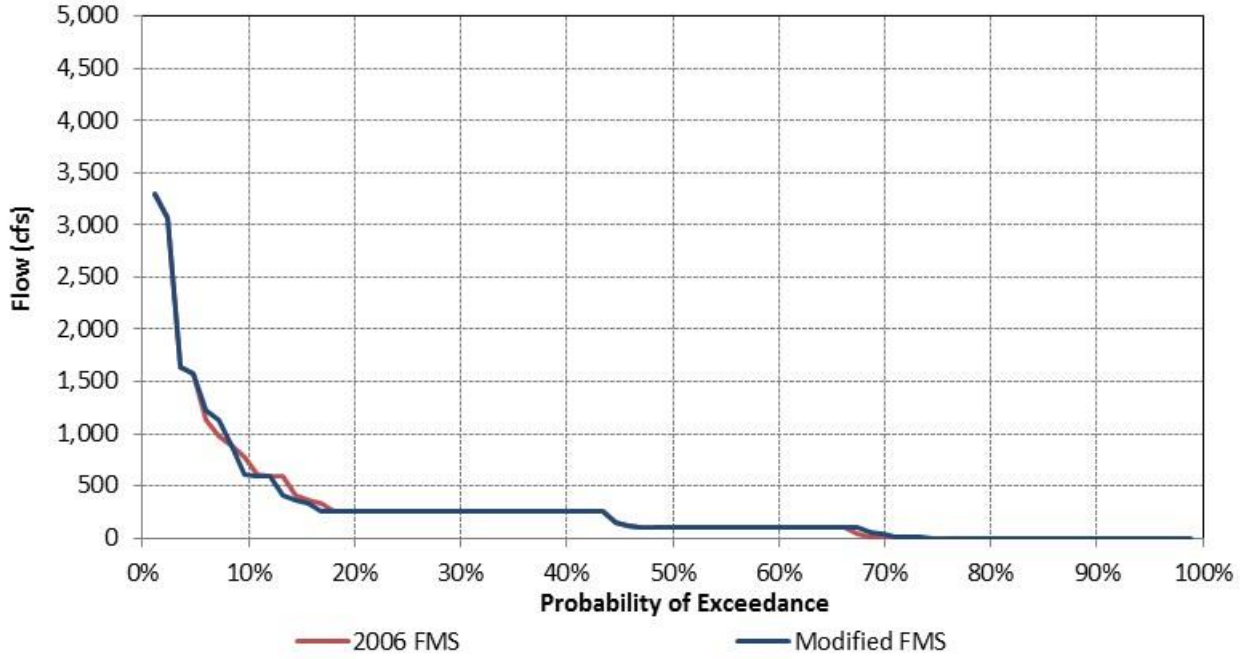


Figure 4.2-24. Comparison of Exceedance Probability for Simulated Trinity River Imports through the Clear Creek Tunnel in December

4.2.6 Trinity River Water Temperatures

Changes in Trinity Reservoir operation have the potential to affect Trinity River water temperatures. This section provides Sacramento River Water Temperature Model output for Trinity River water temperatures for selected months in Figures 4.2-25 through 4.2-29.

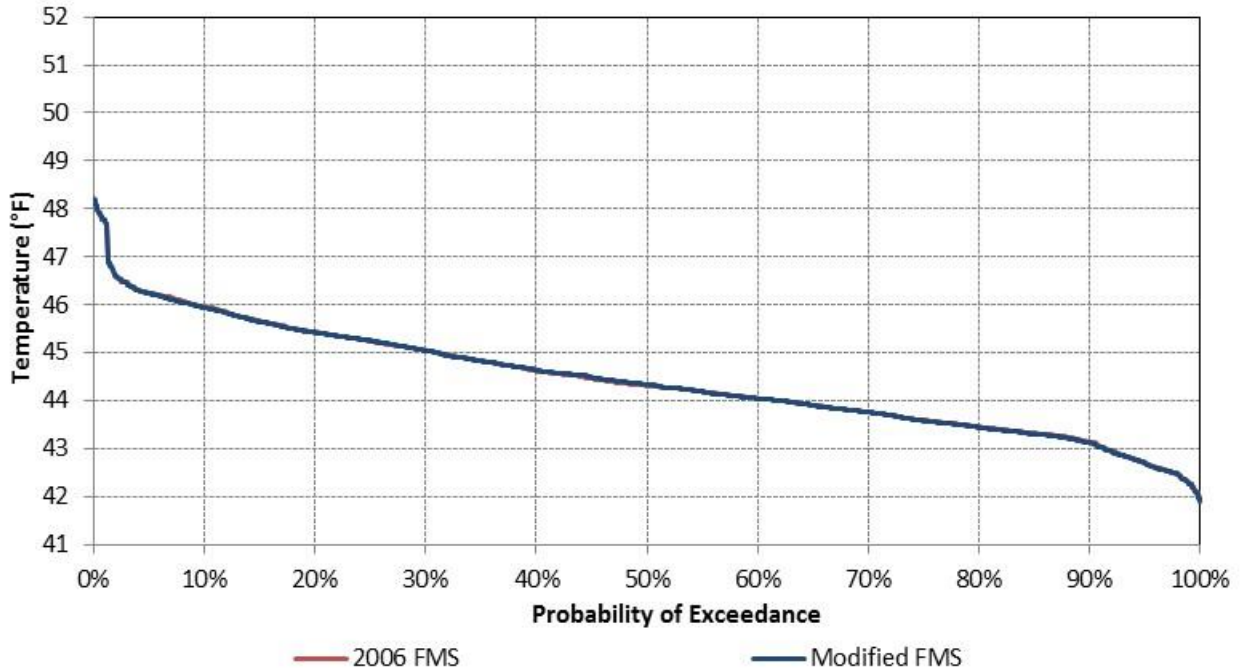


Figure 4.2-25. Comparison of Exceedance Probability for Simulated Trinity River Water Temperatures Below Trinity Dam for June

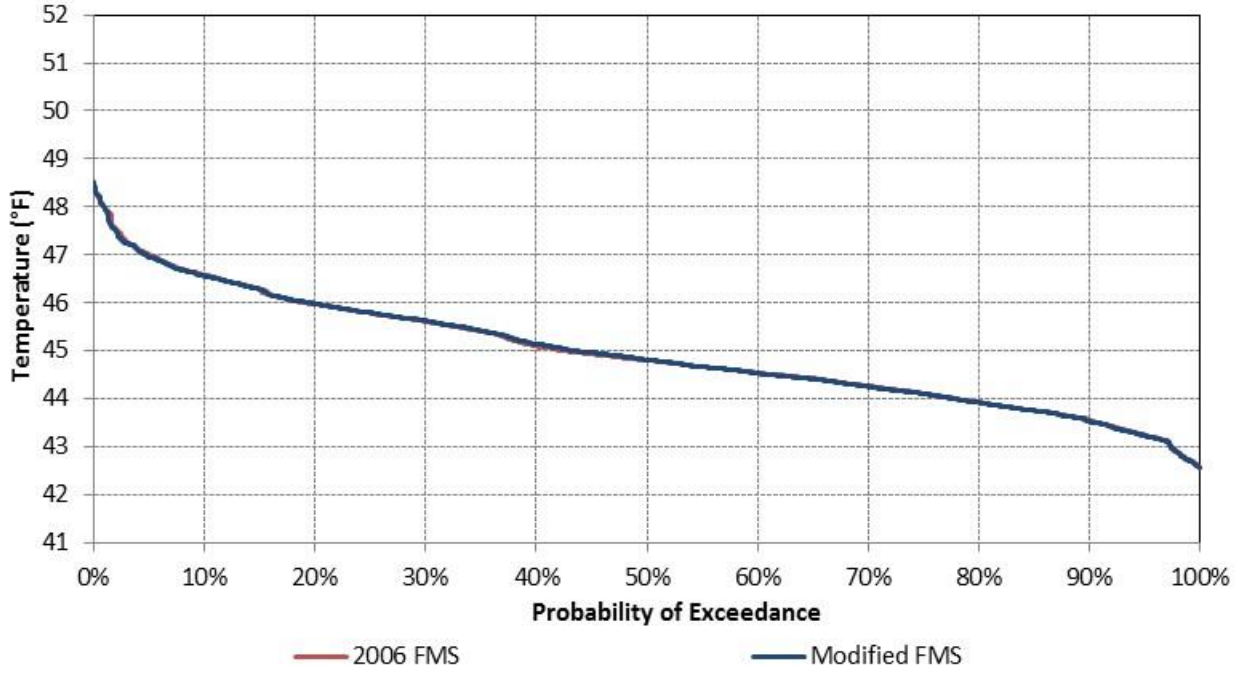


Figure 4.2-26. Comparison of Exceedance Probability for Simulated Trinity River Water Temperatures Below Trinity Dam for July

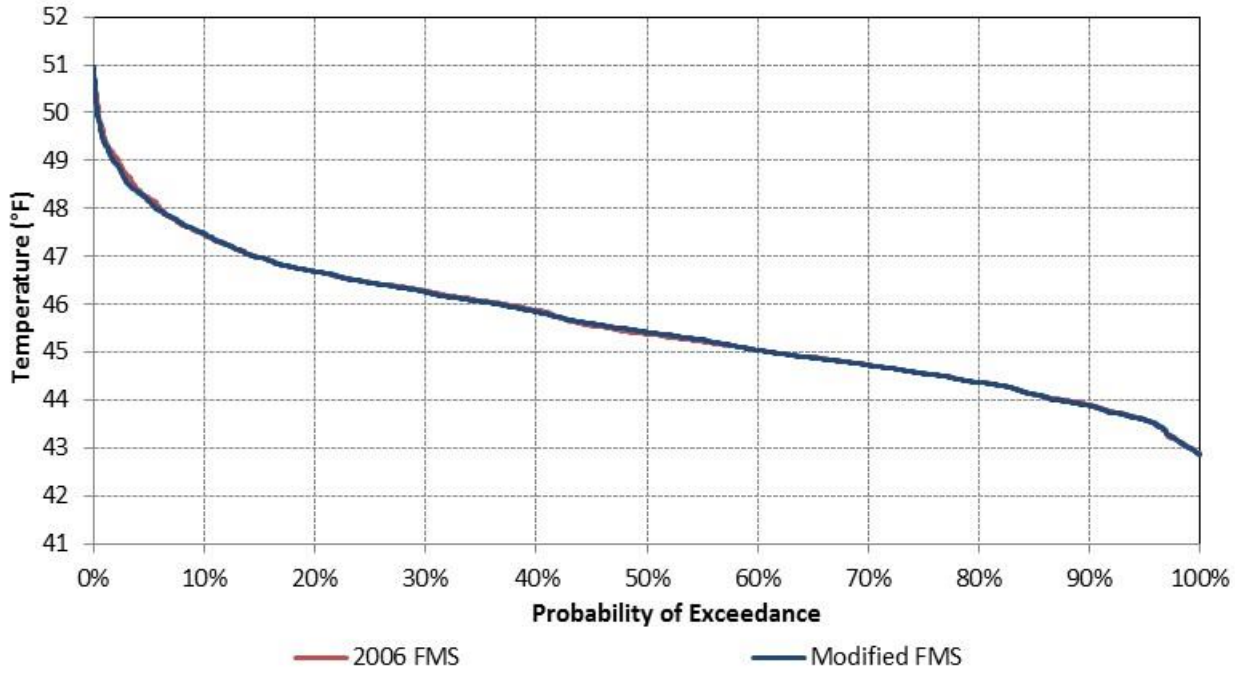


Figure 4.2-27. Comparison of Exceedance Probability for Simulated Trinity River Water Temperatures Below Trinity Dam for August

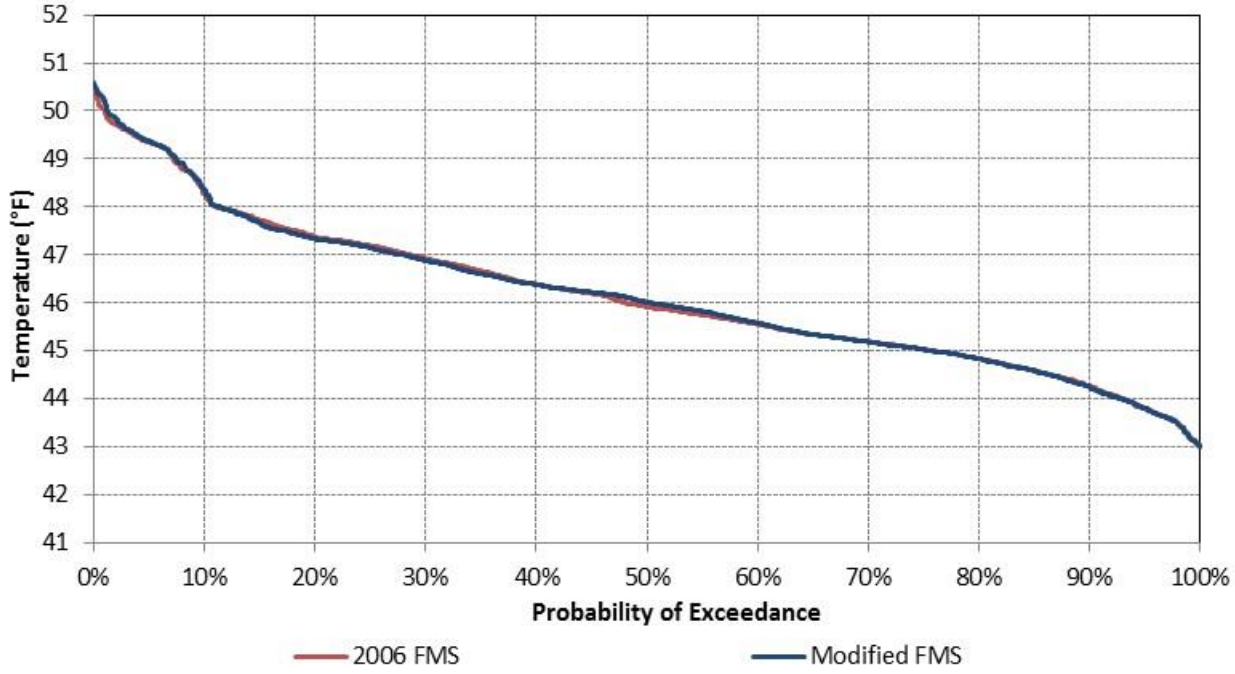


Figure 4.2-28 Comparison of Exceedance Probability for Simulated Trinity River Water Temperatures Below Trinity Dam for September

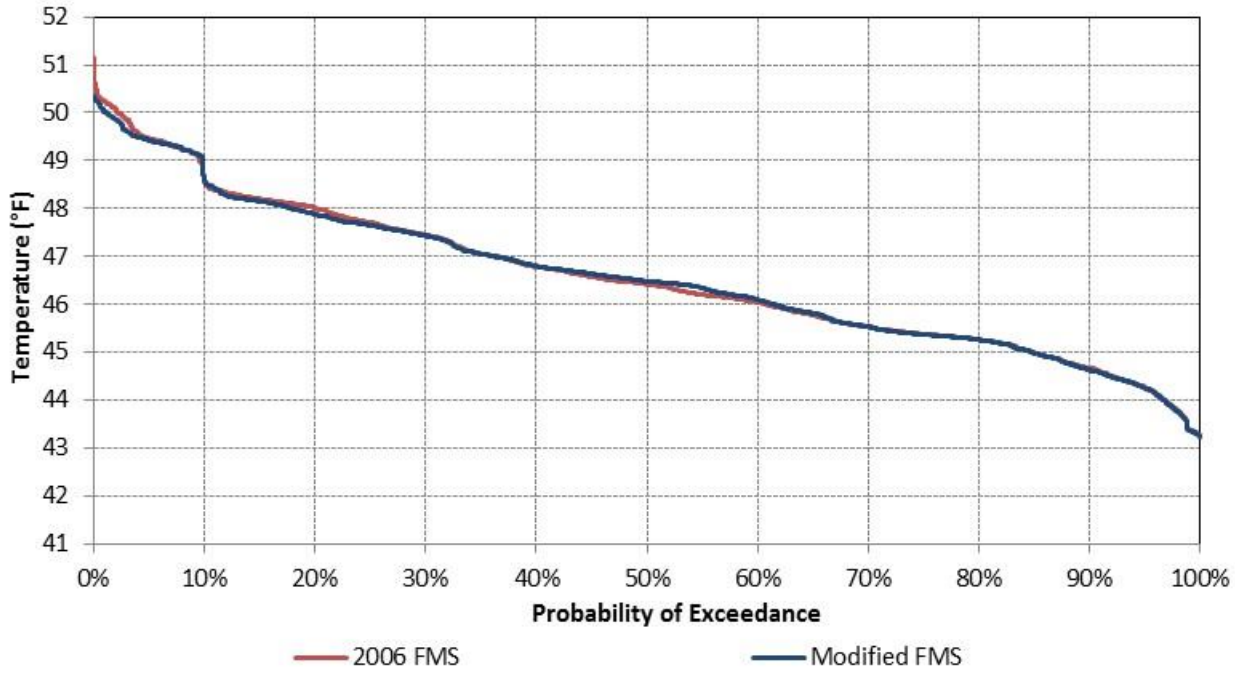


Figure 4.2-29. Comparison of Exceedance Probability for Simulated Trinity River Water Temperatures Below Trinity Dam for October

Downstream from Trinity Dam, Trinity River imports to the Sacramento River are diverted at Lewiston Dam. Figures 4.2-30 through 4.2-34 show simulated water temperatures in the Trinity River below Lewiston Dam.

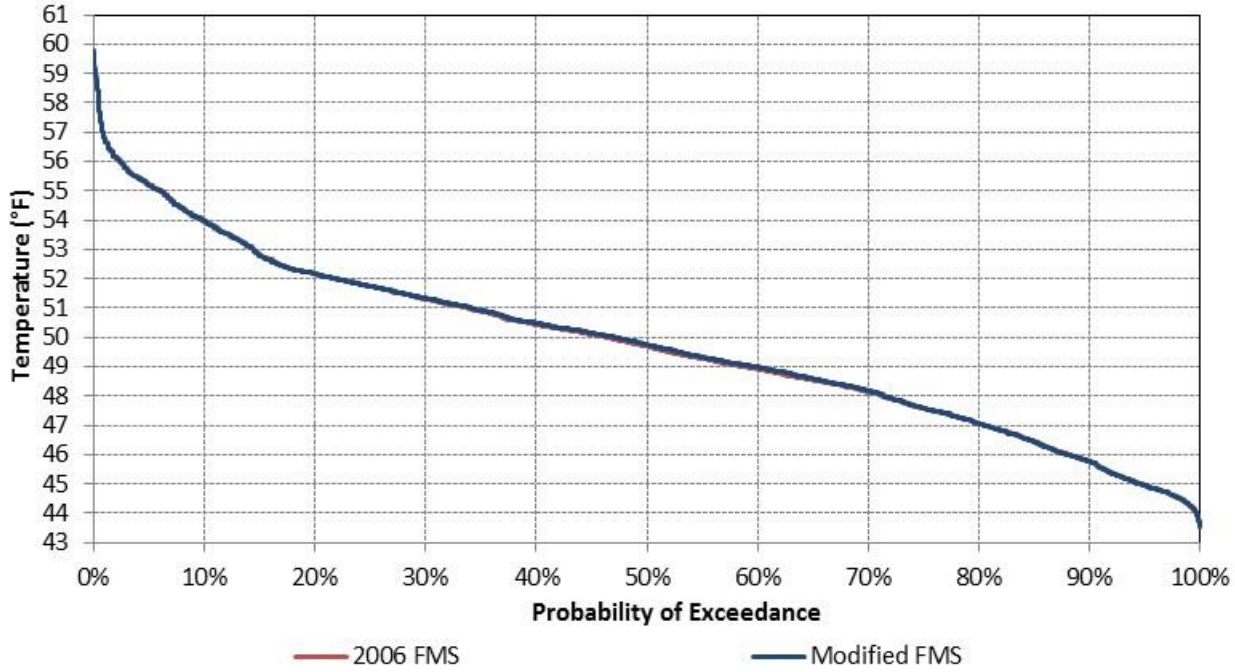


Figure 4.2-30. Comparison of Exceedance Probability for Simulated Trinity River Water Temperatures Below Lewiston Dam for June

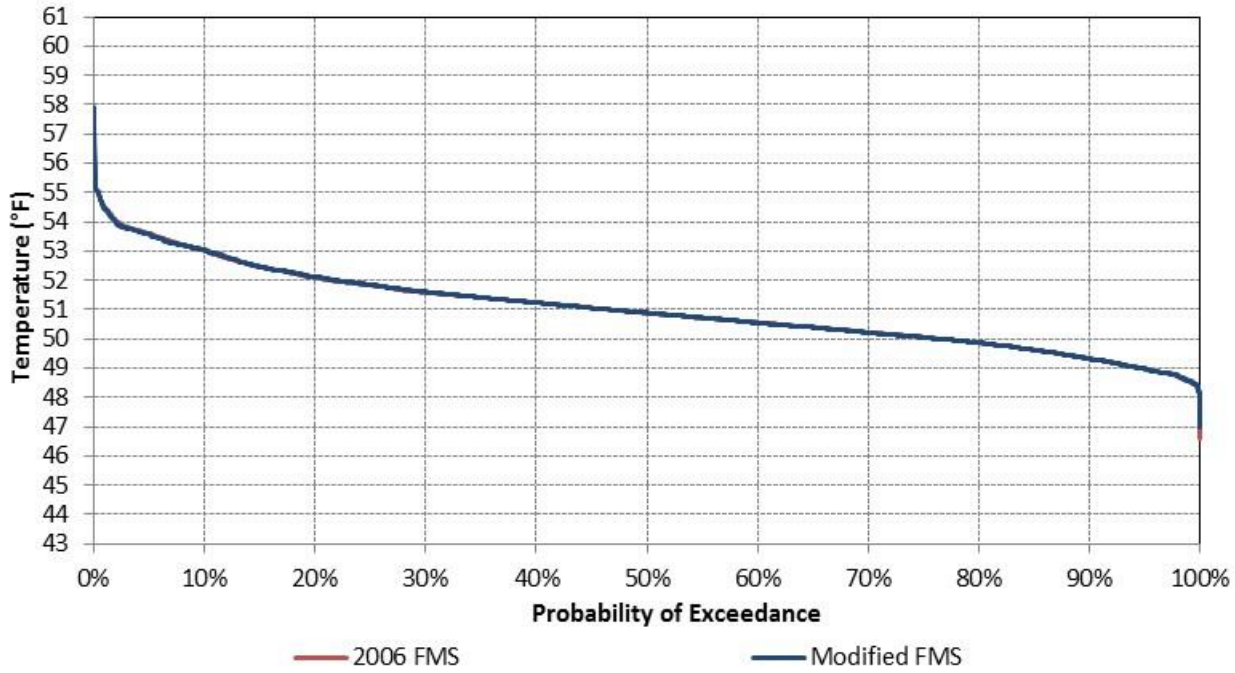


Figure 4.2-31. Comparison of Exceedance Probability for Simulated Trinity River Water Temperatures Below Lewiston Dam for July

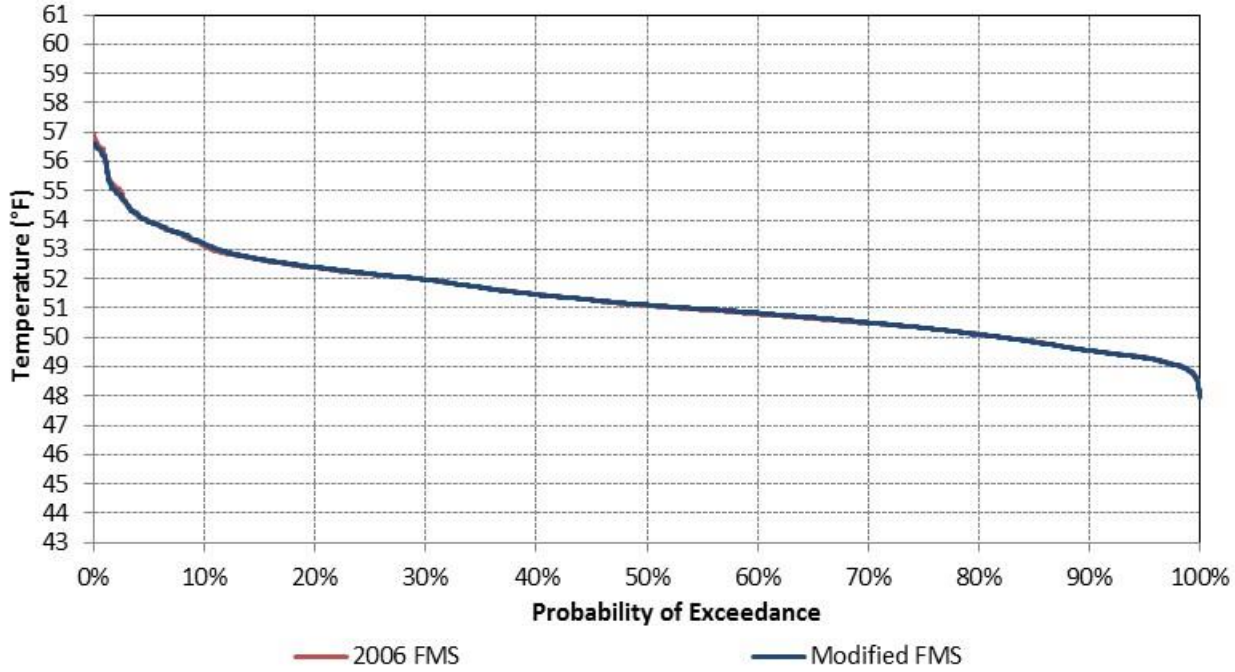


Figure 4.2-32. Comparison of Exceedance Probability for Simulated Trinity River Water Temperatures Below Lewiston Dam for August

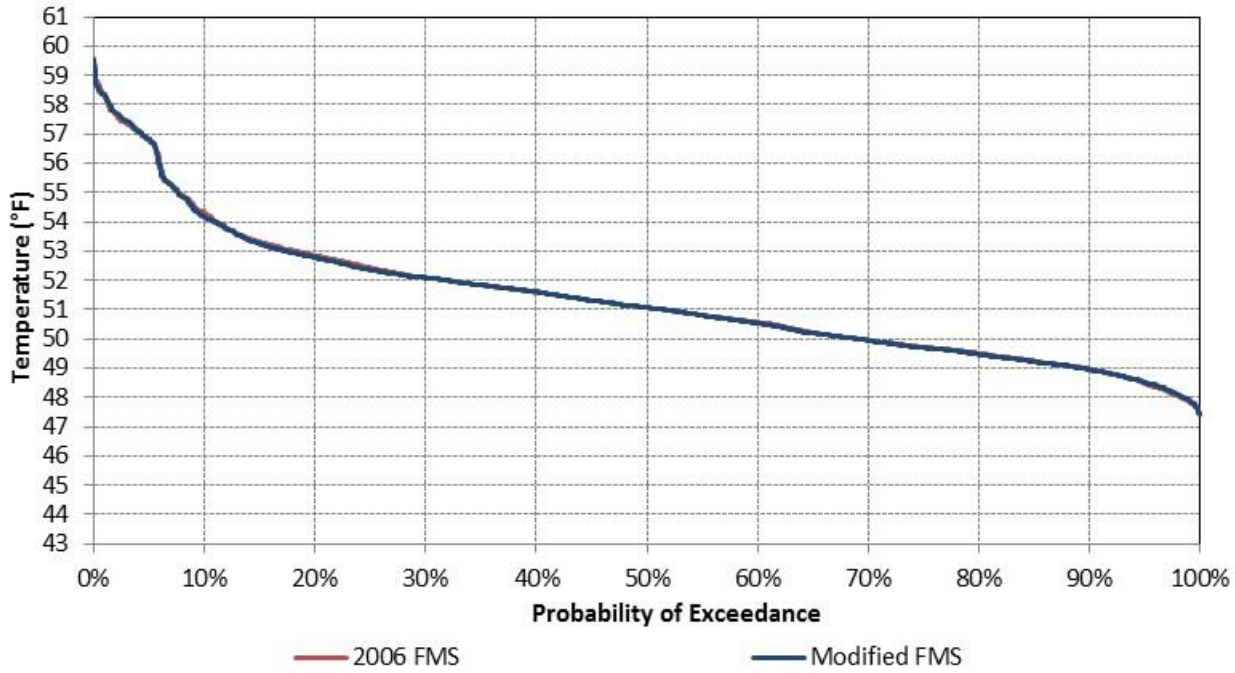


Figure 4.2-33. Comparison of Exceedance Probability for Simulated Trinity River Water Temperatures Below Lewiston Dam for September

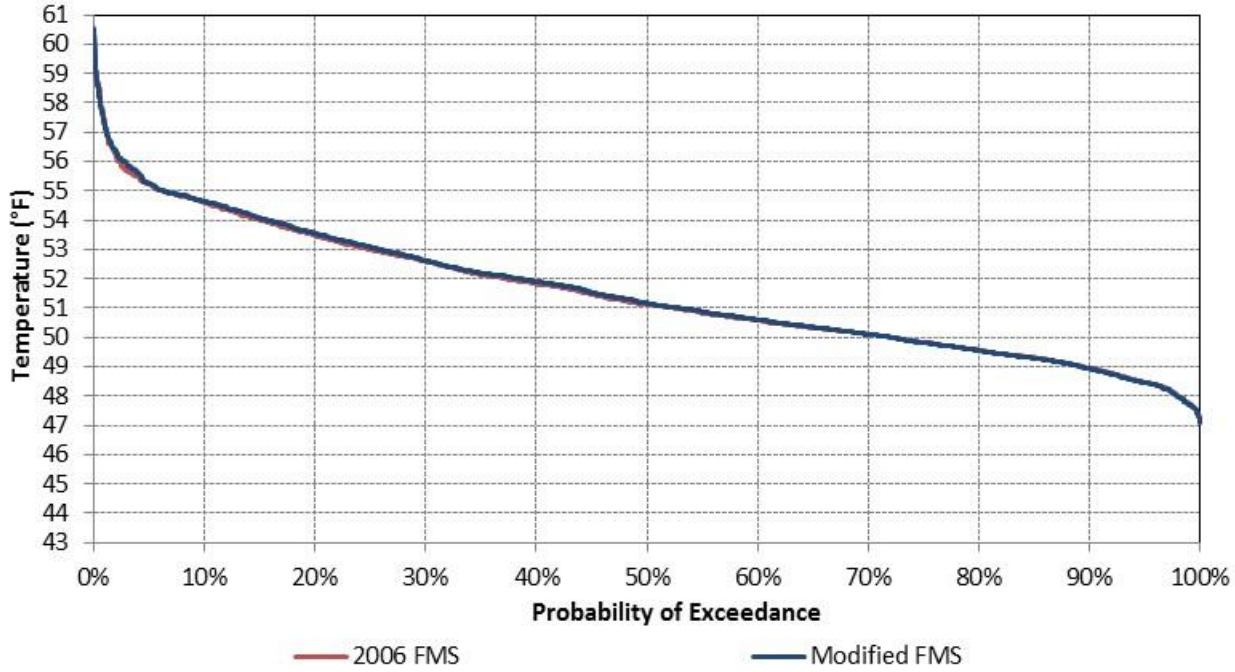


Figure 4.2-34. Comparison of Exceedance Probability for Simulated Trinity River Water Temperatures Below Lewiston Dam for October

4.3 OTHER SYSTEM EFFECTS

This section provides a summary of CalSim II output for other CVP and SWP effects of the Modified FMS, relative to the 2006 FMS.

4.3.1 Oroville Reservoir Storage

Figure 4.3-1 through 4.3-5 show comparisons of simulated Oroville Reservoir storage for selected months. Attachment A includes tables of monthly output for all months for Oroville Reservoir storage for the 2006 FMS and Modified FMS, and the differences in storage between the two runs.

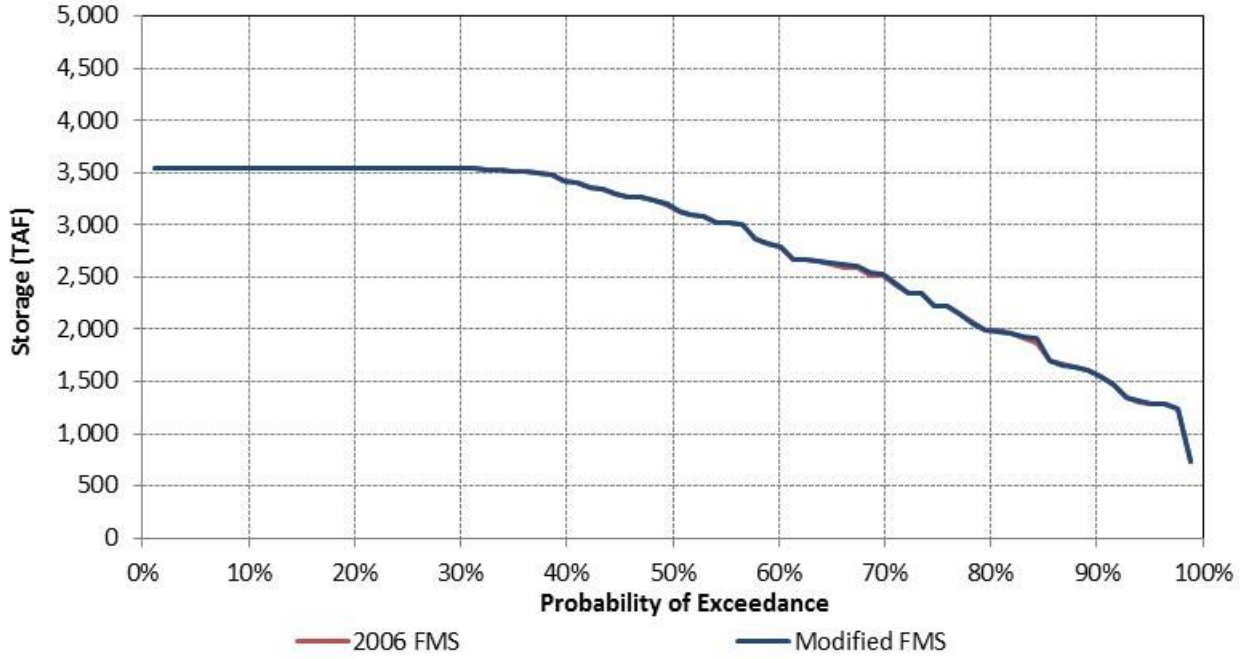


Figure 4.3-1. Comparison of Exceedance Probabilities for Simulated Oroville Reservoir Storage for May

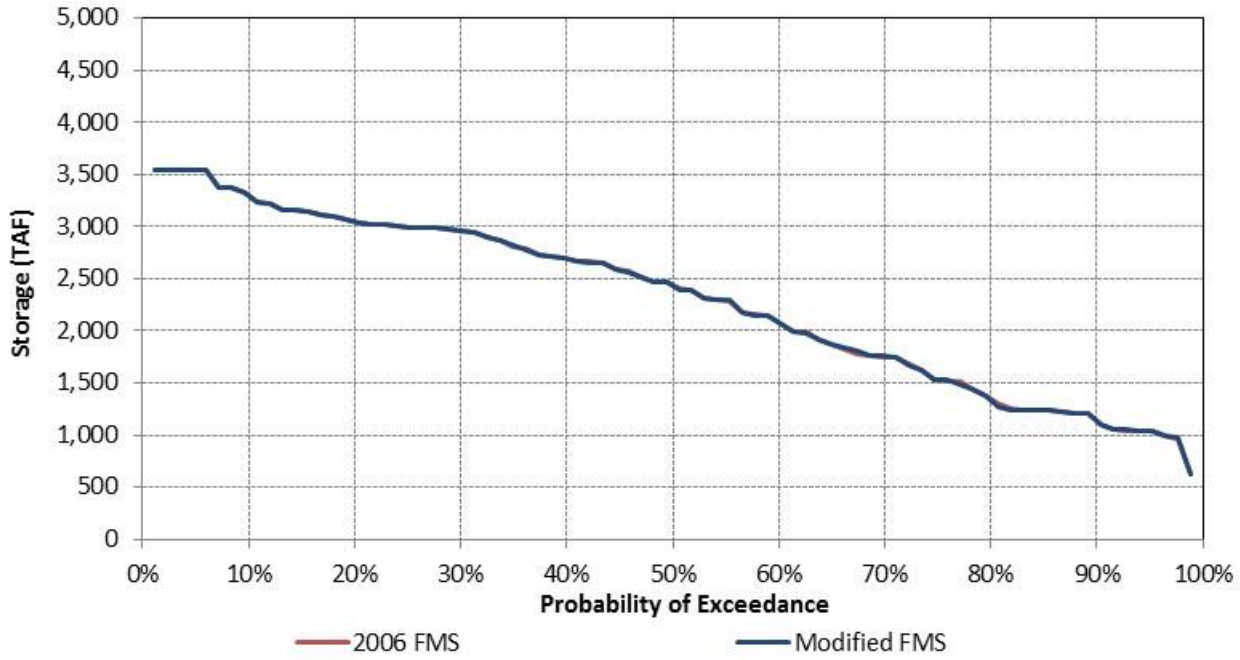


Figure 4.3-2. Comparison of Exceedance Probabilities for Simulated Oroville Reservoir Storage for July

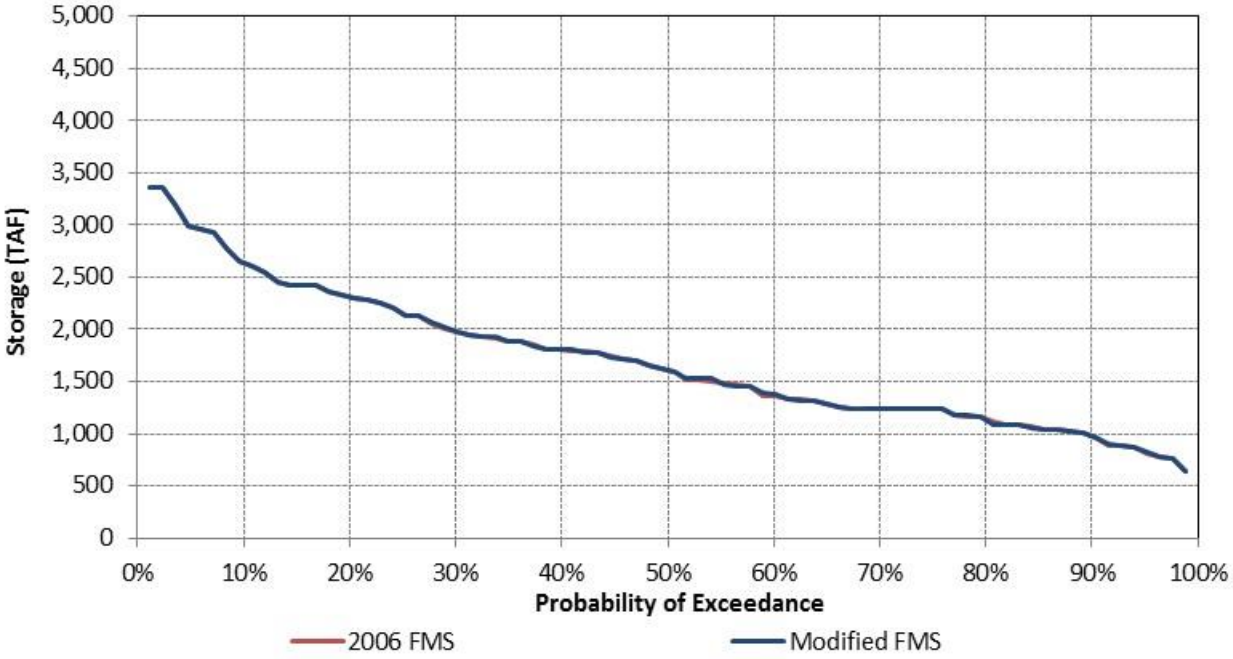


Figure 4.3-3. Comparison of Exceedance Probabilities for Simulated Oroville Reservoir Storage for September

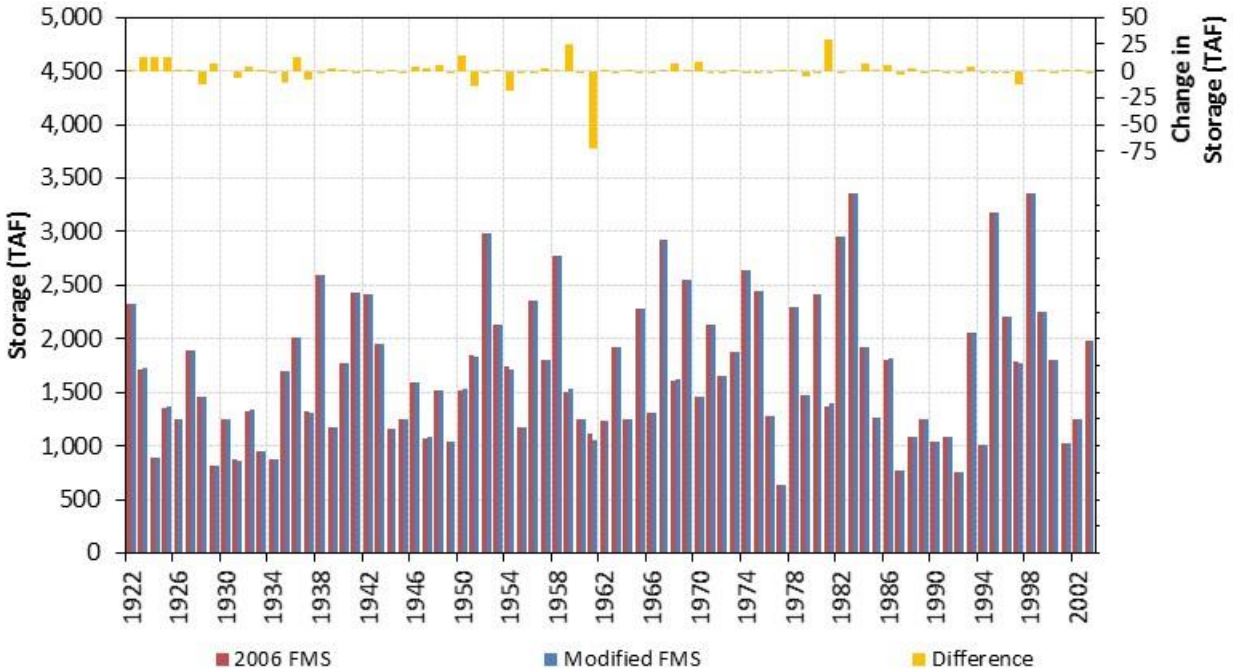


Figure 4.3-4. Year-to-Year Comparison of Simulated End-of-September Oroville Reservoir Storage

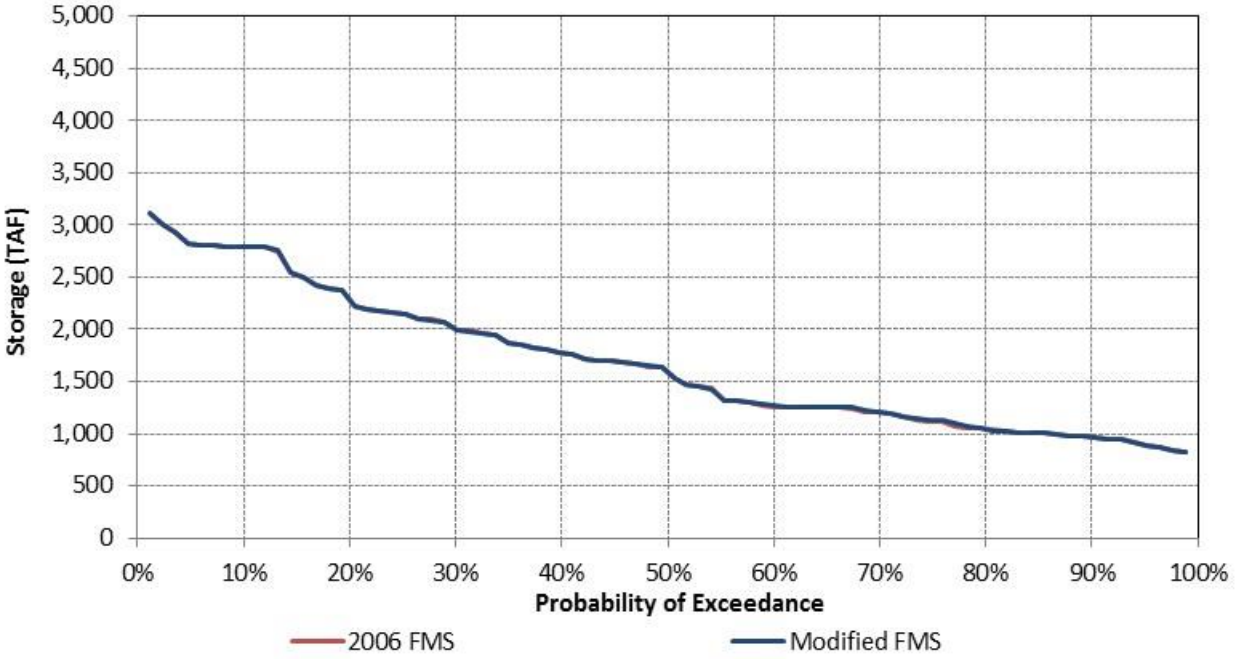


Figure 4.3-5. Comparison of Exceedance Probabilities for Simulated Oroville Reservoir Storage for December

4.3.2 CVP Deliveries

This section provides a summary of simulated CVP deliveries, by long-term average and by water year-type. The Sacramento Valley Index, as defined in State Water Resource Control Board (SWRCB) Decision 1641 (D1641) (SWRCB 2001), is used to define the water year types.

Table 4.3-1. Comparison of Long-Term Average and Water Year Type Monthly Average Total CVP Deliveries

	Average Flow (cfs)												Total
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**(TAF)**
Long-Term Average													
Full Simulation Period													
2006 FMS	4,234	2,340	1,563	1,563	2,035	2,486	7,907	9,605	13,863	14,389	11,469	5,571	4,666
Modified FMS	4,235	2,341	1,564	1,564	2,037	2,486	7,910	9,608	13,865	14,390	11,449	5,573	4,666
Difference	1	1	1	1	1	1	3	3	2	1	-20	2	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	4,378	2,414	1,684	1,810	2,342	2,947	8,189	10,843	15,984	16,865	13,341	6,393	5,283
Modified FMS	4,378	2,414	1,684	1,810	2,342	2,944	8,186	10,840	15,979	16,859	13,314	6,391	5,280
Difference	0	0	0	0	0	-3	-2	-3	-5	-6	-27	-2	-3
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	4,064	2,282	1,503	1,457	1,907	2,591	8,211	10,169	15,133	15,727	12,482	6,025	4,941
Modified FMS	4,064	2,282	1,500	1,453	1,902	2,577	8,206	10,160	15,119	15,710	12,433	6,019	4,934
Difference	0	0	-3	-5	-6	-13	-6	-9	-14	-17	-49	-5	-8
Percent Difference	0%	0%	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	4,434	2,435	1,669	1,700	2,190	2,412	8,036	9,737	13,577	14,089	11,287	5,487	4,667
Modified FMS	4,443	2,441	1,677	1,712	2,204	2,421	8,048	9,753	13,598	14,117	11,308	5,496	4,677
Difference	9	6	8	12	14	9	12	17	21	28	22	9	10
Percent Difference	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Dry													
2006 FMS	4,219	2,311	1,485	1,429	1,871	2,165	7,760	8,972	12,726	12,962	10,416	5,082	4,325
Modified FMS	4,216	2,309	1,482	1,424	1,867	2,172	7,766	8,978	12,738	12,957	10,373	5,087	4,323
Difference	-3	-2	-3	-4	-4	6	6	6	12	-5	-42	4	-2
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Critical													
2006 FMS	3,880	2,169	1,354	1,175	1,564	1,946	7,061	7,157	10,041	10,175	8,193	4,168	3,566
Modified FMS	3,882	2,171	1,356	1,179	1,569	1,952	7,071	7,163	10,034	10,187	8,204	4,172	3,569
Difference	1	2	2	4	4	5	10	6	-6	12	12	4	3
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: CalSim II output for DEL_CVP_TOTAL

cfs = cubic feet per second TAF = thousands of acre-feet

Table 4.3-2. Comparison of Long-Term Average and Water Year Type Monthly Average Total North-of-Delta CVP Deliveries

Analysis Period	Average Flow (cfs) Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total (TAF)
Long-Term Average													
Full Simulation Period													
2006 FMS	1,519	712	348	182	189	307	5,112	5,676	8,127	8,123	6,142	2,082	2,335
Modified FMS	1,519	712	348	182	189	307	5,113	5,677	8,129	8,125	6,144	2,082	2,336
Difference	1	0	0	0	0	1	1	1	2	2	2	1	1
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	1,492	658	315	184	188	284	4,737	5,984	8,726	8,788	6,710	2,400	2,454
Modified FMS	1,493	658	315	184	188	284	4,736	5,983	8,725	8,786	6,708	2,399	2,454
Difference	0	0	0	0	0	0	-1	-1	-2	-2	-1	-1	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	1,424	707	345	163	174	239	5,124	5,858	8,780	8,738	6,594	2,306	2,453
Modified FMS	1,426	709	345	163	174	239	5,120	5,851	8,771	8,726	6,585	2,301	2,450
Difference	2	2	0	0	0	-1	-4	-6	-10	-12	-10	-5	-3
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	1,629	740	373	189	185	348	5,386	5,965	8,115	8,170	6,157	2,040	2,383
Modified FMS	1,631	740	373	190	186	349	5,391	5,975	8,125	8,185	6,169	2,046	2,387
Difference	3	1	0	0	0	1	5	10	10	15	12	6	4
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Dry													
2006 FMS	1,584	748	356	188	194	269	5,315	5,551	7,838	7,721	5,812	1,826	2,267
Modified FMS	1,583	748	356	188	196	271	5,318	5,553	7,844	7,729	5,818	1,828	2,269
Difference	0	0	0	0	1	2	3	2	7	8	6	3	2
Percent Difference	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	0%	0%
Critical													
2006 FMS	1,445	747	382	179	200	432	5,285	4,677	6,623	6,614	4,938	1,600	2,007
Modified FMS	1,445	747	382	178	200	433	5,290	4,677	6,626	6,617	4,940	1,601	2,008
Difference	-1	0	0	0	0	1	6	0	3	3	2	1	1
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: CalSim II output for DEL_CVP_TOTAL_N

cfs = cubic feet per second TAF = thousands of acre-feet

Table 4.3-3. Comparison of Long-Term Average and Water Year Type Monthly Average Total South-of-Delta CVP Deliveries

Analysis Period	Average Flow (cfs) Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total (TAF)
Long-Term Average													
Full Simulation Period													
2006 FMS	2,715	1,628	1,215	1,381	1,846	2,179	2,795	3,930	5,736	6,266	5,327	3,489	2,331
Modified FMS	2,716	1,628	1,216	1,382	1,847	2,179	2,797	3,931	5,736	6,265	5,305	3,490	2,330
Difference	1	0	1	1	1	0	2	2	0	-1	-21	1	-1
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	2,886	1,756	1,369	1,626	2,154	2,663	3,452	4,859	7,257	8,076	6,632	3,993	2,828
Modified FMS	2,886	1,756	1,369	1,626	2,154	2,660	3,450	4,857	7,254	8,073	6,606	3,992	2,826
Difference	0	0	0	0	0	-3	-1	-2	-3	-4	-26	-1	-2
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	2,640	1,575	1,158	1,294	1,734	2,351	3,087	4,311	6,353	6,990	5,887	3,719	2,488
Modified FMS	2,638	1,573	1,155	1,290	1,728	2,339	3,086	4,309	6,349	6,985	5,848	3,718	2,483
Difference	-2	-2	-3	-4	-6	-12	-2	-2	-4	-5	-39	-1	-5
Percent Difference	0%	0%	0%	0%	0%	-1%	0%	0%	0%	0%	-1%	0%	0%
Below Normal													
2006 FMS	2,806	1,695	1,296	1,511	2,004	2,064	2,650	3,771	5,462	5,919	5,129	3,447	2,284
Modified FMS	2,812	1,701	1,304	1,522	2,018	2,072	2,657	3,778	5,473	5,932	5,139	3,451	2,291
Difference	7	6	7	11	14	7	7	7	11	13	10	4	6
Percent Difference	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Dry													
2006 FMS	2,635	1,563	1,129	1,241	1,676	1,896	2,445	3,422	4,888	5,241	4,604	3,257	2,057
Modified FMS	2,633	1,561	1,127	1,236	1,671	1,900	2,448	3,425	4,894	5,228	4,555	3,258	2,053
Difference	-2	-2	-3	-4	-5	4	4	3	5	-13	-49	2	-4
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	0%
Critical													
2006 FMS	2,435	1,422	972	997	1,365	1,515	1,777	2,480	3,417	3,561	3,254	2,568	1,558
Modified FMS	2,437	1,424	974	1,000	1,369	1,519	1,781	2,486	3,408	3,570	3,264	2,571	1,561
Difference	2	2	2	4	4	4	4	6	-9	9	10	3	2
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: CalSim II output for DEL_CVP_TOTAL_S

cfs = cubic feet per second TAF = thousands of acre-feet

Table 4.3-4. Comparison of Long-Term Average and Water Year Type Monthly Average North-of-Delta CVP Agricultural Water Service Contract Deliveries

	Average Flow (cfs)												Total
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**(TAF)**
Long-Term Average													
Full Simulation Period													
2006 FMS	71	2	0	0	2	13	282	534	760	880	703	324	217
Modified FMS	71	2	0	0	2	13	282	535	762	883	705	325	218
Difference	0	0	0	0	0	0	0	1	2	3	2	1	1
Percent Difference	1%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Water Year-Types													
Wet													
2006 FMS	72	2	0	0	0	12	351	780	1,139	1,325	1,065	503	319
Modified FMS	72	2	0	0	0	12	350	779	1,140	1,327	1,066	505	319
Difference	1	0	0	0	0	0	-1	-1	0	1	1	1	0
Percent Difference	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	63	3	0	0	0	6	390	735	1,107	1,263	996	464	305
Modified FMS	63	3	0	0	0	6	386	729	1,097	1,250	985	458	302
Difference	0	0	0	0	0	0	-4	-6	-10	-13	-10	-5	-3
Percent Difference	0%	0%	0!	0%	0%	0%	-1%	-1%	-1%	-1%	-1%	-1%	-1%
Below Normal													
2006 FMS	99	4	0	0	1	25	313	520	667	787	626	277	202
Modified FMS	101	4	0	0	1	25	317	527	677	801	637	282	205
Difference	2	0	0	0	0	0	3	8	11	14	11	5	3
Percent Difference	2%	3%	0%	0%	0%	0%	1%	2%	2%	2%	2%	2%	2%
Dry													
2006 FMS	74	3	0	0	4	13	215	339	461	524	421	178	136
Modified FMS	75	3	0	0	4	13	217	344	467	531	427	181	137
Difference	0	0	0	0	0	0	2	5	6	7	6	2	2
Percent Difference	0%	0%	0%	0%	0%	2%	1%	1%	1%	1%	1%	1%	1%
Critical													
2006 FMS	40	1	0	0	6	11	87	108	151	172	139	67	47
Modified FMS	39	1	0	0	6	11	88	109	153	175	140	68	48
Difference	-1	0	0	0	0	0	2	2	2	2	2	1	1
Percent Difference	-2%	1%	0%	0%	0%	3%	2%	2%	1%	1%	1%	1%	1%

Source: CalSim II output for DEL_CVP_PAG_N

cfs = cubic feet per second TAF = thousands of acre-feet

Table 4.3-5. Comparison of Long-Term Average and Water Year Type Monthly Average North-of-Delta CVP M&I Deliveries

Analysis Period	Average Flow (cfs) Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total (TAF)
Long-Term Average													
Full Simulation Period													
2006 FMS	184	154	114	99	119	165	264	331	401	431	357	249	174
Modified FMS	184	154	115	99	119	165	265	331	401	432	357	250	174
Difference	0	0	0	0	0	0	1	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	199	164	126	109	130	204	305	399	490	525	460	305	207
Modified FMS	199	164	126	109	130	204	304	399	489	525	459	305	207
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	171	153	113	99	117	195	315	397	469	514	445	297	199
Modified FMS	173	156	113	99	117	194	315	396	469	513	445	296	199
Difference	2	2	0	0	0	-1	0	0	0	0	0	0	0
Percent Difference	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	192	156	109	98	117	177	291	355	422	452	362	264	181
Modified FMS	193	156	110	98	118	178	292	357	422	454	363	265	182
Difference	1	1	0	0	0	1	1	2	0	2	1	1	1
Percent Difference	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%
Dry													
2006 FMS	188	154	114	97	115	118	214	261	315	339	249	189	142
Modified FMS	187	154	114	97	116	120	215	259	315	340	250	189	142
Difference	0	0	0	0	1	2	0	-2	1	1	1	0	0
Percent Difference	0%	0%	0%	0%	1%	1%	0%	-1%	0%	0%	0%	0%	0%
Critical													
2006 FMS	149	126	98	84	103	106	168	196	243	259	199	157	114
Modified FMS	149	126	98	84	103	106	172	195	244	260	199	157	114
Difference	0	0	0	0	0	0	4	-1	1	1	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	2%	-1%	0%	0%	0%	0%	0%

Source: CalSim II output for DEL_CVP_PMI_N

cfs = cubic feet per second TAF = thousands of acre-feet

Table 4.3-6. Comparison of Long-Term Average and Water Year Type Monthly CVP Sacramento River Settlement Contractor Deliveries

Analysis Period	Average Flow (cfs) Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total (TAF)
Long-Term Average													
Full Simulation Period													
2006 FMS	1,085	343	100	19	11	112	4,548	4,750	6,871	6,683	4,910	1,271	1,862
Modified FMS	1,085	343	100	19	11	112	4,548	4,750	6,871	6,682	4,909	1,271	1,862
Difference	0	0	0	0	0	0	0	0	0	-1	-1	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	1,033	265	53	11	0	51	4,063	4,738	6,995	6,799	4,997	1,347	1,841
Modified FMS	1,033	265	53	11	0	51	4,063	4,738	6,994	6,796	4,995	1,346	1,841
Difference	0	0	0	0	0	0	0	0	-2	-3	-2	-2	-1
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	1,023	346	101	2	0	21	4,399	4,659	7,102	6,823	4,965	1,302	1,864
Modified FMS	1,023	346	101	2	0	21	4,399	4,659	7,103	6,824	4,966	1,303	1,864
Difference	0	0	0	0	0	0	0	0	1	1	1	1	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	1,145	357	128	27	9	129	4,763	5,025	6,925	6,792	4,981	1,255	1,913
Modified FMS	1,145	357	128	27	9	129	4,763	5,025	6,924	6,791	4,981	1,255	1,913
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Dry													
2006 FMS	1,139	381	108	28	18	122	4,868	4,886	6,963	6,724	4,961	1,219	1,905
Modified FMS	1,139	381	108	28	18	122	4,868	4,886	6,963	6,724	4,961	1,219	1,905
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Critical													
2006 FMS	1,107	438	155	34	35	303	5,017	4,337	6,170	6,105	4,504	1,172	1,781
Modified FMS	1,107	438	155	34	35	303	5,017	4,337	6,170	6,105	4,504	1,172	1,781
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: CalSim II output for DEL_CVP_PSC_N

cfs = cubic feet per second TAF = thousands of acre-feet

Table 4.3-7. Comparison of Long-Term Average and Water Year Type Monthly Average South-of-Delta CVP Agricultural Water Service Contract Deliveries

	Average Flow (cfs)												Total
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**(TAF)**
Long-Term Average													
Full Simulation Period													
2006 FMS	463	353	489	858	1,073	637	1,056	1,523	2,539	3,053	2,165	722	903
Modified FMS	464	354	489	859	1,074	637	1,058	1,524	2,539	3,052	2,149	723	902
Difference	0	0	0	1	1	0	2	2	0	-1	-16	1	-1
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	587	448	620	1,088	1,364	1,057	1,651	2,377	3,967	4,771	3,372	1,128	1,357
Modified FMS	587	448	620	1,088	1,364	1,054	1,649	2,375	3,964	4,767	3,346	1,127	1,355
Difference	0	0	0	0	0	-3	-1	-2	-3	-4	-25	-1	-2
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	0%
Above Normal													
2006 FMS	421	321	444	780	972	766	1,301	1,844	3,078	3,702	2,647	875	1,038
Modified FMS	418	319	442	775	967	755	1,300	1,842	3,074	3,697	2,607	874	1,033
Difference	-2	-2	-3	-4	-6	-11	-2	-3	-4	-5	-39	-1	-5
Percent Difference	-1%	-1%	-1%	-1%	-1%	-1%	0%	0%	0%	0%	-1%	0%	0%
Below Normal													
2006 FMS	529	403	558	980	1,225	505	885	1,320	2,203	2,649	1,909	626	833
Modified FMS	535	408	564	991	1,238	512	891	1,326	2,214	2,662	1,918	629	839
Difference	6	4	6	11	13	6	7	6	11	13	9	3	6
Percent Difference	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	1%
Dry													
2006 FMS	391	298	412	724	906	357	700	1,001	1,671	2,010	1,423	475	626
Modified FMS	388	296	410	719	900	361	704	1,005	1,677	1,997	1,398	477	624
Difference	-2	-2	-2	-4	-5	4	4	3	5	-13	-25	1	-2
Percent Difference	-1%	-1%	-1%	-1%	-1%	1%	1%	0%	0%	-1%	-2%	0%	0%
Critical													
2006 FMS	269	205	284	499	619	173	257	369	599	718	483	175	280
Modified FMS	271	207	286	502	624	177	261	375	590	726	492	178	282
Difference	2	1	2	3	4	4	4	5	-10	9	9	3	2
Percent Difference	1%	1%	1%	1%	1%	2%	2%	1%	-2%	1%	2%	1%	1%

Source: CalSim II output for DEL_CVP_PAG_S

cfs = cubic feet per second TAF = thousands of acre-feet

4.3.3 SWP Deliveries

This section provides a summary of simulated SWP deliveries, by long-term average and by water year-type. The Sacramento Valley Index, as defined in D1641, is used to define the water year types.

Table 4.3-8. Comparison of Long-Term Average and Water Year Type Monthly Average Total SWP Deliveries

	Average Flow (cfs)												Total
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**(TAF)**
Long-Term Average													
Full Simulation Period													
2006 FMS	5,553	5,054	4,516	829	777	1,337	4,065	5,811	7,745	8,250	7,875	6,362	3,527
Modified FMS	5,550	5,049	4,514	824	777	1,337	4,066	5,813	7,745	8,250	7,873	6,357	3,526
Difference	-3	-4	-2	-5	1	0	1	1	-1	-1	-1	-6	-1
Percent Difference	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	6,339	5,764	4,977	1,351	1,559	2,484	5,176	7,401	9,313	9,447	9,183	7,614	4,278
Modified FMS	6,352	5,779	4,992	1,339	1,559	2,480	5,175	7,399	9,314	9,452	9,188	7,619	4,280
Difference	12	14	14	-12	0	-3	-1	-1	1	5	5	5	2
Percent Difference	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	5,144	4,957	4,298	664	843	1,741	4,774	6,597	8,638	8,971	8,753	7,210	3,793
Modified FMS	5,133	4,953	4,295	664	844	1,741	4,773	6,596	8,637	8,970	8,752	7,209	3,792
Difference	-10	-4	-4	0	0	1	-1	-2	-1	-1	0	-1	-1
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	5,800	5,169	4,645	624	473	876	4,251	5,910	8,049	8,812	8,565	7,121	3,656
Modified FMS	5,763	5,122	4,611	619	476	880	4,267	5,927	8,053	8,809	8,567	7,107	3,650
Difference	-37	-46	-34	-5	4	4	16	17	5	-4	1	-15	-6
Percent Difference	-1%	-1%	-1%	-1%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Dry													
2006 FMS	5,273	4,684	4,566	526	228	398	3,086	4,621	6,694	7,519	6,968	5,732	3,051
Modified FMS	5,275	4,683	4,570	525	227	400	3,079	4,617	6,690	7,515	6,955	5,714	3,049
Difference	2	-1	4	0	-1	2	-7	-3	-4	-4	-12	-18	-3
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Critical													
2006 FMS	4,393	4,031	3,510	556	192	395	2,200	3,253	4,679	5,376	4,718	2,864	2,195
Modified FMS	4,393	4,030	3,503	556	192	395	2,200	3,251	4,676	5,372	4,714	2,859	2,194
Difference	0	0	-8	0	0	0	1	-2	-3	-4	-4	-6	-2
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: CalSim II output for DEL_SWP_TOTAL

cfs = cubic feet per second TAF = thousands of acre-feet

Table 4.3-9. Comparison of Long-Term Average and Water Year Type Monthly Average North-of-Delta SWP Deliveries

Analysis Period	Average Flow (cfs) Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total (TAF)
Long-Term Average													
Full Simulation Period													
2006 FMS	1,530	1,577	1,014	368	11	82	2,119	2,686	3,207	3,143	2,489	1,867	1,218
Modified FMS	1,526	1,571	1,010	366	11	82	2,119	2,686	3,207	3,143	2,489	1,867	1,217
Difference	-4	-6	-4	-2	0	0	0	0	0	0	0	0	-1
Percent Difference	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	1,584	1,704	1,048	310	14	56	1,864	2,793	3,361	3,322	2,643	2,090	1,260
Modified FMS	1,584	1,704	1,049	310	14	56	1,864	2,793	3,361	3,322	2,643	2,090	1,260
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	1,381	1,512	986	335	10	38	2,075	2,756	3,419	3,306	2,625	2,012	1,240
Modified FMS	1,381	1,512	986	335	10	38	2,075	2,756	3,419	3,306	2,625	2,012	1,240
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	1,641	1,554	1,013	417	7	70	2,221	2,839	3,285	3,214	2,557	1,962	1,260
Modified FMS	1,616	1,522	991	406	8	70	2,221	2,839	3,285	3,214	2,557	1,962	1,254
Difference	-26	-32	-22	-11	0	0	0	0	0	0	0	0	-5
Percent Difference	-2%	-2%	-2%	-3%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Dry													
2006 FMS	1,489	1,469	989	390	9	91	2,294	2,789	3,318	3,182	2,532	1,873	1,238
Modified FMS	1,489	1,469	990	390	9	91	2,294	2,789	3,318	3,182	2,532	1,873	1,238
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Critical													
2006 FMS	1,494	1,554	1,003	437	10	185	2,335	2,054	2,400	2,450	1,874	1,115	1,025
Modified FMS	1,494	1,554	1,003	437	10	185	2,335	2,054	2,400	2,450	1,874	1,115	1,025
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: CalSim II output for DEL_SWP_TOT_N

cfs = cubic feet per second TAF = thousands of acre-feet

Table 4.3-10. Comparison of Long-Term Average and Water Year Type Monthly Average South-of-Delta SWP Deliveries

Analysis Period	Average Flow (cfs) Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total (TAF)
Long-Term Average													
Full Simulation Period													
2006 FMS	4,089	3,479	3,502	460	766	1,264	2,360	3,645	5,153	5,702	5,853	4,844	2,493
Modified FMS	4,090	3,480	3,504	458	767	1,264	2,361	3,646	5,153	5,703	5,852	4,839	2,493
Difference	1	1	2	-3	1	0	1	1	0	0	-1	-6	0
Percent Difference	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	4,803	4,061	3,929	1,041	1,545	2,431	3,657	5,130	6,572	6,726	7,011	5,901	3,198
Modified FMS	4,815	4,076	3,943	1,029	1,545	2,427	3,657	5,129	6,574	6,731	7,016	5,906	3,201
Difference	12	14	14	-12	0	-4	-1	-2	2	6	5	5	2
Percent Difference	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	3,814	3,448	3,312	329	833	1,705	3,090	4,361	5,862	6,278	6,610	5,568	2,740
Modified FMS	3,804	3,444	3,308	329	834	1,705	3,089	4,360	5,861	6,277	6,610	5,567	2,738
Difference	-10	-4	-4	0	0	0	-1	-1	-1	-1	0	-1	-1
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	4,243	3,617	3,632	207	465	812	2,448	3,604	5,377	6,194	6,478	5,517	2,583
Modified FMS	4,231	3,602	3,620	213	469	817	2,464	3,622	5,382	6,193	6,482	5,504	2,583
Difference	-12	-14	-12	6	4	4	16	17	5	-1	4	-13	0
Percent Difference	0%	0%	0%	3%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Dry													
2006 FMS	3,861	3,219	3,576	135	220	319	1,225	2,358	4,001	4,932	4,906	4,207	2,000
Modified FMS	3,864	3,217	3,580	135	219	321	1,218	2,355	3,997	4,928	4,894	4,189	1,998
Difference	2	-1	4	0	-1	2	-7	-3	-4	-4	-12	-18	-2
Percent Difference	0%	0%	0%	0%	0%	1%	-1%	0%	0%	0%	0%	0%	0%
Critical													
2006 FMS	2,978	2,480	2,507	119	183	241	420	1,689	2,837	3,492	3,276	2,000	1,350
Modified FMS	2,978	2,480	2,499	119	183	241	420	1,687	2,833	3,488	3,271	1,995	1,348
Difference	0	0	-8	0	0	0	1	-2	-3	-4	-4	-6	-2
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: CalSim II output for DEL_SWP_TOT_S

cfs = cubic feet per second TAF = thousands of acre-feet

Table 4.3-11. Comparison of Long-Term Average and Water Year Type Monthly Average South-of-Delta SWP Agricultural Deliveries

	Average Flow (cfs)												Total
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**(TAF)**
Long-Term Average													
Full Simulation Period													
2006 FMS	646	488	656	56	104	149	291	842	1,918	2,057	2,009	1,049	623
Modified FMS	648	489	653	56	104	149	291	842	1,918	2,056	2,009	1,045	623
Difference	2	1	-3	0	0	0	0	0	0	-1	0	-4	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	809	588	747	87	141	207	428	1,214	2,636	2,520	2,649	1,470	819
Modified FMS	817	595	756	86	141	206	427	1,213	2,636	2,522	2,649	1,470	820
Difference	9	7	8	0	0	0	0	0	0	2	1	0	2
Percent Difference	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	564	454	653	51	109	172	348	1,016	2,262	2,252	2,313	1,272	696
Modified FMS	567	454	654	51	109	172	347	1,016	2,261	2,251	2,313	1,271	696
Difference	3	0	1	0	0	0	0	0	-1	0	0	0	0
Percent Difference	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	690	545	692	46	93	124	273	850	1,989	2,140	2,107	1,138	649
Modified FMS	686	541	686	46	93	123	275	853	1,993	2,139	2,109	1,140	649
Difference	-5	-4	-6	0	0	0	2	3	4	-1	2	2	0
Percent Difference	-1%	-1%	-1%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%
Dry													
2006 FMS	592	448	676	38	78	104	179	528	1,324	1,721	1,495	774	483
Modified FMS	591	447	677	38	77	104	179	527	1,323	1,719	1,493	756	482
Difference	-1	0	1	0	0	0	0	-1	-2	-3	-2	-18	-2
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-2%	0%
Critical													
2006 FMS	403	297	386	33	69	96	128	326	829	1,263	976	224	306
Modified FMS	404	297	354	33	69	96	128	325	828	1,262	974	224	304
Difference	0	0	-31	0	0	0	0	0	-1	-2	-1	-1	-2
Percent Difference	0%	0%	-8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-1%

Source: CalSim II output for DEL_SWP_PAG_S

cfs = cubic feet per second TAF = thousands of acre-feet

Table 4.3-12. Comparison of Long-Term Average and Water Year Type Monthly Average South-of-Delta SWP M&I Deliveries

Analysis Period	Average Flow (cfs) Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total (TAF)
Long-Term Average													
Full Simulation Period													
2006 FMS	3,361	2,926	2,800	361	610	1,061	1,993	2,694	3,099	3,494	3,719	3,670	1,805
Modified FMS	3,359	2,926	2,805	358	611	1,061	1,994	2,695	3,099	3,495	3,718	3,669	1,805
Difference	-1	0	4	-3	1	0	1	1	0	1	-1	-2	0
Percent Difference	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	3,912	3,408	3,135	910	1,352	2,170	3,154	3,808	3,800	4,054	4,237	4,307	2,315
Modified FMS	3,915	3,416	3,141	899	1,352	2,166	3,154	3,807	3,802	4,058	4,242	4,312	2,316
Difference	4	7	6	-11	0	-4	-1	-1	2	4	5	5	1
Percent Difference	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	3,168	2,928	2,613	234	672	1,478	2,667	3,237	3,464	3,875	4,172	4,172	1,980
Modified FMS	3,154	2,925	2,608	234	672	1,478	2,666	3,235	3,463	3,875	4,172	4,171	1,978
Difference	-13	-4	-5	0	0	0	-1	-1	-1	-1	0	-1	-2
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	3,470	3,006	2,893	117	319	634	2,099	2,646	3,253	3,902	4,246	4,255	1,869
Modified FMS	3,463	2,996	2,887	122	323	638	2,113	2,660	3,253	3,903	4,248	4,240	1,870
Difference	-7	-11	-6	6	3	5	14	14	1	1	2	-14	0
Percent Difference	0%	0%	0%	5%	1%	1%	1%	1%	0%	0%	0%	0%	0%
Dry													
2006 FMS	3,187	2,706	2,853	53	89	160	970	1,722	2,541	3,059	3,286	3,308	1,452
Modified FMS	3,190	2,705	2,856	53	89	162	964	1,719	2,538	3,058	3,276	3,309	1,451
Difference	3	-1	3	0	0	2	-6	-3	-3	-1	-10	1	-1
Percent Difference	0%	0%	0%	0%	0%	1%	-1%	0%	0%	0%	0%	0%	0%
Critical													
2006 FMS	2,493	2,118	2,075	42	62	90	216	1,254	1,871	2,077	2,175	1,652	979
Modified FMS	2,492	2,117	2,098	42	62	90	217	1,253	1,869	2,074	2,172	1,647	980
Difference	0	0	24	0	0	0	1	-2	-2	-3	-3	-5	1
Percent Difference	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: CalSim II output for DEL_SWP_PMI_S

cfs = cubic feet per second TAF = thousands of acre-feet

4.4 DELTA OUTPUTS

This section provides a summary of CalSim II output for various Sacramento-San Joaquin River Delta parameters by long-term average and by water year-type. The Sacramento Valley Index, as defined in D1641, is used to define the water year types.

Table 4.4-1. Comparison of Long-Term Average and Water Year Type Monthly Average Total Delta Outflow

	Average Flow (cfs)												Total
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**(TAF)**
Long-Term Average													
Full Simulation Period													
2006 FMS	5,959	11,404	20,881	41,754	52,800	42,106	29,976	21,852	12,618	7,976	4,329	9,730	15,658
Modified FMS	5,954	11,421	20,828	41,766	52,924	42,143	29,945	21,789	12,638	7,959	4,333	9,739	15,660
Difference	-5	17	-53	12	124	37	-32	-64	21	-18	4	10	3
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	7,579	17,204	42,340	83,144	96,821	78,535	54,274	39,730	22,938	11,363	5,071	19,525	28,669
Modified FMS	7,567	17,154	42,462	83,400	96,852	78,498	54,246	39,709	22,944	11,337	5,072	19,525	28,684
Difference	-12	-50	122	255	31	-37	-28	-21	6	-26	1	0	15
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	5,515	12,105	17,742	46,153	60,872	50,870	31,783	23,656	11,518	9,682	4,000	11,719	17,097
Modified FMS	5,516	12,096	17,746	46,427	60,942	50,888	31,762	23,506	11,538	9,638	4,000	11,719	17,106
Difference	1	-9	3	274	70	18	-21	-150	20	-44	0	0	10
Percent Difference	0%	0%	0%	1%	0%	0%	0%	-1%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	5,461	8,492	12,239	21,910	35,758	22,557	21,601	15,611	8,177	7,286	4,009	3,920	9,991
Modified FMS	5,463	8,606	11,875	21,627	36,284	22,599	21,592	15,632	8,184	7,273	4,009	3,963	9,993
Difference	1	114	-364	-283	526	43	-10	20	7	-13	0	43	2
Percent Difference	0%	1%	-3%	-1%	1%	0%	0%	0%	0%	0%	0%	1%	0%
Dry													
2006 FMS	5,269	8,210	8,866	14,453	22,660	19,179	14,130	10,256	6,728	5,110	3,968	3,260	7,319
Modified FMS	5,269	8,292	8,742	14,293	22,670	19,356	14,017	10,058	6,790	5,109	3,984	3,271	7,304
Difference	0	81	-124	-160	10	178	-112	-199	62	-1	16	10	-15
Percent Difference	0%	1%	-1%	-1%	0%	1%	-1%	-2%	1%	0%	0%	0%	0%
Critical													
2006 FMS	4,506	6,321	5,630	11,780	14,442	11,612	9,065	5,989	5,371	4,037	3,967	3,000	5,145
Modified FMS	4,496	6,301	5,610	11,603	14,521	11,610	9,110	6,025	5,378	4,034	3,970	3,000	5,140
Difference	-11	-21	-20	-177	79	-3	45	36	7	-3	3	0	-4
Percent Difference	0%	0%	0%	-1%	1%	0%	0%	1%	0%	0%	0%	0%	0%

Source: CalSim II output for C406

cfs = cubic feet per second TAF = thousands of acre-feet

Table 4.4-2. Comparison of Long-Term Average and Water Year Type Monthly Average X2 Location

	Average Location (KM)											
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**
						Long-Term Average						
Full Simulation Period												
2006 FMS	83	84	82	76	67	60	61	64	68	75	80	85
Modified FMS	83	84	82	76	67	60	61	64	68	75	80	85
Difference	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
						Water Year-Type Averages						
Wet												
2006 FMS	81	81	77	64	54	50	52	55	58	65	74	83
Modified FMS	81	81	77	64	54	50	52	55	58	65	74	83
Difference	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal												
2006 FMS	83	83	81	77	62	54	54	59	63	73	78	84
Modified FMS	83	83	81	77	62	54	54	59	63	73	78	84
Difference	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal												
2006 FMS	84	85	85	81	72	61	63	65	69	77	81	85
Modified FMS	84	85	85	82	72	61	63	65	69	77	81	85
Difference	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Dry												
2006 FMS	84	85	85	83	77	69	67	70	75	81	85	88
Modified FMS	84	85	85	83	78	69	67	70	75	81	85	88
Difference	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Critical												
2006 FMS	88	89	89	88	82	75	74	77	83	86	88	90
Modified FMS	88	89	89	88	82	75	74	77	83	86	88	90
Difference	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: CalSim II output for X2_PRV

KM = Kilometers

4.5 POWER-RELATED MODEL OUTPUTS

This section includes model outputs from the LTGen and SWP Power models.

4.5.1 CVP Generation

Tables 4.5-1 through 4.5-6 show simulated monthly average CVP generation for selected locations by both long-term average and water year-type averages. The Sacramento Valley Index, as defined in D1641, is used to define the water year types.

Table 4.5-1. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average Total CVP Generation

	Average Generation (GWh)												
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
						Long-Term Average							
Full Simulation Period													
2006 FMS	297	268	266	322	326	346	375	508	551	666	526	409	4,860
Modified FMS	298	269	265	320	328	347	374	507	550	667	525	412	4,861
Difference	2	0	-1	-2	3	1	0	-1	-1	0	-2	3	1
Percent Difference	1%	0%	0%	-1%	1%	0%	0%	0%	0%	0%	0%	1%	0%
						Water Year-Type Averages							
Wet													
2006 FMS	336	331	439	552	535	578	492	648	627	719	600	637	6,494
Modified FMS	339	335	438	552	535	577	492	647	625	718	601	638	6,498
Difference	3	5	-2	1	1	-2	0	-1	-2	-1	1	2	4
Percent Difference	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	312	283	221	311	437	400	388	542	570	724	545	461	5,193
Modified FMS	314	285	220	314	436	399	387	537	570	722	544	463	5,191
Difference	2	2	-1	3	-1	-1	-1	-5	0	-2	-1	2	-3
Percent Difference	1%	1%	0%	1%	0%	0%	0%	-1%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	294	239	210	199	235	246	327	472	533	662	509	308	4,234
Modified FMS	292	238	210	195	246	248	327	474	534	663	507	311	4,244
Difference	-2	-1	-1	-3	11	2	0	2	1	1	-2	3	10
Percent Difference	-1%	0%	0%	-2%	5%	1%	0%	0%	0%	0%	0%	1%	0%
Dry													
2006 FMS	275	234	166	175	153	183	310	444	547	668	503	276	3,935
Modified FMS	277	231	165	171	155	187	309	441	546	669	502	281	3,933
Difference	2	-3	-1	-4	2	4	-2	-4	-1	1	-1	4	-2
Percent Difference	1%	-1%	-1%	-2%	1%	2%	-1%	-1%	0%	0%	0%	1%	0%
Critical													
2006 FMS	233	204	149	197	125	152	259	308	394	496	403	181	3,102
Modified FMS	234	201	150	190	127	153	261	311	391	501	395	184	3,098
Difference	1	-3	1	-7	2	0	2	2	-2	5	-7	3	-4
Percent Difference	0%	-2%	0%	-4%	1%	0%	1%	1%	-1%	1%	-2%	2%	0%

Source LTGen
GWh=Gigawatt-hours

Table 4.5-2. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average Folsom Powerhouse Generation

Analysis Period	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
	Average Generation (GWh)												
	Long-Term Average												
Full Simulation Period													
2006 FMS	26	33	39	49	56	55	52	56	57	61	36	36	556
Modified FMS	24	32	38	49	59	57	52	56	57	61	37	36	558
Difference	-1	-1	-1	0	2	1	-1	-1	0	1	0	1	1
Percent Difference	-5%	-4%	-2%	1%	4%	2%	-1%	-1%	0%	1%	1%	2%	0%
	Water Year-Type Averages												
Wet													
2006 FMS	27	41	61	92	98	89	83	94	93	67	54	57	855
Modified FMS	26	40	62	96	98	89	82	94	93	67	54	56	856
Difference	-1	-1	1	4	0	0	0	0	0	-1	0	-1	0
Percent Difference	-5%	-3%	2%	4%	0%	0%	-1%	0%	0%	-1%	0%	-3%	0%
Above Normal													
2006 FMS	25	37	33	50	74	83	57	62	56	76	38	47	638
Modified FMS	25	37	32	53	75	83	57	62	55	74	38	46	637
Difference	0	-1	-1	3	1	0	0	0	-1	-2	0	-1	-1
Percent Difference	0%	-2%	-2%	6%	2%	0%	-1%	-1%	-1%	-2%	0%	-3%	0%
Below Normal													
2006 FMS	26	28	37	32	43	41	52	50	47	82	30	25	494
Modified FMS	24	27	35	28	52	42	52	51	47	81	32	29	500
Difference	-2	-2	-2	-4	9	1	0	1	0	-1	2	4	6
Percent Difference	-7%	-6%	-5%	-11%	21%	2%	0%	1%	-1%	-1%	5%	14%	1%
Dry													
2006 FMS	24	27	25	21	25	28	31	31	37	50	28	21	347
Modified FMS	22	25	23	19	27	32	29	26	38	53	29	24	346
Difference	-1	-2	-2	-2	2	4	-2	-5	1	3	1	2	-1
Percent Difference	-6%	-6%	-8%	-9%	8%	13%	-6%	-15%	2%	5%	3%	12%	0%
Critical													
2006 FMS	24	27	21	17	13	12	13	15	19	23	16	13	213
Modified FMS	22	26	20	15	14	13	14	17	21	27	16	13	219
Difference	-1	-1	-1	-2	1	1	1	2	1	4	0	0	5
Percent Difference	-6%	-2%	-5%	-13%	8%	11%	4%	15%	7%	16%	-1%	2%	2%

Source LTGen

GWh=Gigawatt-hours

Table 4.5-3. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average Shasta Powerhouse Generation

Analysis Period	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
						Average Generation (GWh)							
						Long-Term Average							
Full Simulation Period													
2006 FMS	121	147	138	153	174	166	158	203	258	287	204	150	2,159
Modified FMS	123	146	138	153	174	166	158	203	258	286	204	150	2,159
Difference	2	-1	0	0	0	0	0	0	0	-2	0	0	0
Percent Difference	2%	-1%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	0%	0%
						Water Year-Type Averages							
Wet													
2006 FMS	131	177	224	274	290	287	205	244	266	296	244	264	2,902
Modified FMS	134	175	223	273	290	287	205	244	267	296	244	265	2,903
Difference	3	-2	-1	-1	0	0	0	0	1	0	0	1	1
Percent Difference	2%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	113	154	121	159	246	180	137	214	292	340	216	149	2,322
Modified FMS	113	155	122	159	245	180	137	210	291	341	216	152	2,322
Difference	-1	1	1	0	-1	0	0	-4	0	0	0	3	0
Percent Difference	-1%	1%	1%	0%	0%	0%	0%	-2%	0%	0%	0%	2%	0%
Below Normal													
2006 FMS	128	141	113	83	123	107	127	187	263	291	200	97	1,860
Modified FMS	130	141	114	83	123	107	127	187	264	291	199	96	1,863
Difference	2	0	1	-1	0	0	0	1	1	0	-1	-1	3
Percent Difference	2%	0%	1%	-1%	0%	0%	0%	0%	0%	0%	0%	-1%	0%
Dry													
2006 FMS	116	126	86	83	69	85	138	183	255	282	182	80	1,685
Modified FMS	119	125	87	83	69	85	139	186	255	277	182	79	1,685
Difference	3	-1	1	0	-1	0	0	3	0	-5	0	-1	-1
Percent Difference	2%	-1%	1%	1%	-1%	0%	0%	2%	0%	-2%	0%	-1%	0%
Critical													
2006 FMS	104	114	79	69	71	78	142	153	209	218	141	71	1,448
Modified FMS	107	113	78	71	71	77	142	150	206	214	142	70	1,441
Difference	3	-2	-1	2	0	-1	0	-3	-2	-5	1	0	-7
Percent Difference	3%	-1%	-2%	3%	1%	-1%	0%	-2%	-1%	-2%	1%	0%	0%

Source LTGen

GWh=Gigawatt-hours

Table 4.5-4. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average Trinity Powerhouse Generation

	Average Generation (GWh)												
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
						Long-Term Average							
Full Simulation Period													
2006 FMS	26	13	16	20	14	18	20	83	56	59	49	43	418
Modified FMS	26	13	16	20	14	18	21	83	56	59	48	43	417
Difference	0	1	0	-1	0	0	0	0	0	0	-1	0	0
Percent Difference	0%	5%	-1%	-3%	-1%	-1%	0%	0%	0%	1%	-2%	1%	0%
						Water Year-Type Averages							
Wet													
2006 FMS	32	18	31	34	22	32	26	102	78	70	51	60	557
Modified FMS	33	20	30	33	22	32	27	102	78	69	51	61	557
Difference	0	2	-1	-1	0	-1	0	0	-1	0	0	0	0
Percent Difference	1%	11%	-2%	-2%	0%	-3%	0%	0%	-1%	0%	0%	1%	0%
Above Normal													
2006 FMS	32	13	9	12	18	17	24	98	60	58	53	54	449
Modified FMS	32	13	9	12	17	17	24	98	60	58	53	54	445
Difference	0	0	0	0	-1	0	0	0	0	0	0	0	-4
Percent Difference	-1%	-1%	-4%	-3%	-7%	-1%	-1%	0%	0%	-1%	0%	0%	-1%
Below Normal													
2006 FMS	23	9	9	13	11	16	17	83	47	52	48	37	364
Modified FMS	23	9	9	13	12	16	16	83	48	53	48	37	366
Difference	0	0	0	0	0	0	0	0	0	0	-1	0	2
Percent Difference	1%	5%	3%	0%	3%	1%	-1%	0%	0%	1%	-1%	0%	0%
Dry													
2006 FMS	22	12	9	12	8	8	16	74	48	61	50	34	353
Modified FMS	22	12	9	11	8	8	16	74	48	62	49	34	353
Difference	0	0	0	0	0	0	0	0	0	1	0	1	1
Percent Difference	1%	0%	0%	-1%	0%	2%	0%	0%	-1%	1%	-1%	2%	0%
Critical													
2006 FMS	16	9	8	22	6	7	15	42	25	41	38	14	244
Modified FMS	16	8	9	21	6	8	16	43	25	43	34	15	242
Difference	0	0	1	-2	0	0	1	1	0	1	-4	1	-2
Percent Difference	-1%	-3%	8%	-7%	0%	2%	5%	1%	-1%	3%	-10%	4%	-1%

Source LTGen

GWh=Gigawatt-hours

Table 4.5-5. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average CVP San Luis Powerhouse Generation

	Average Generation (GWh)												
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
						Long-Term Average							
Full Simulation Period													
2006 FMS	0	0	0	0	0	1	19	30	28	19	12	1	111
Modified FMS	0	0	0	0	0	1	19	30	28	20	12	1	111
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	-12%	-19%	0%	0%	-23%	-26%	0%	0%	0%	1%	-1%	1%	0%
						Water Year-Type Averages							
Wet													
2006 FMS	0	1	0	0	0	0	19	31	24	30	18	1	123
Modified FMS	0	1	0	0	0	0	19	30	23	30	18	1	122
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	-85%	-20%	0%	0%	0%	0%	0%	0%	-1%	1%	1%	-4%	0%
Above Normal													
2006 FMS	0	0	0	0	0	0	23	34	26	23	9	2	118
Modified FMS	0	0	0	0	0	0	23	34	27	24	9	1	119
Difference	0	0	0	0	0	0	0	0	1	1	0	0	1
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	3%	3%	-3%	-1%	1%
Below Normal													
2006 FMS	0	0	0	0	1	0	21	32	30	14	8	0	104
Modified FMS	0	0	0	0	0	0	21	32	30	14	8	0	105
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	-47%	0%	0%	0%	1%	2%	0%	0%	0%
Dry													
2006 FMS	1	1	0	0	0	1	20	33	34	10	11	0	112
Modified FMS	1	1	0	0	0	1	21	33	34	10	11	0	111
Difference	0	0	0	0	0	0	0	0	0	0	0	0	-1
Percent Difference	-6%	-18%	0%	0%	0%	-41%	1%	-1%	0%	4%	-3%	5%	-1%
Critical													
2006 FMS	0	0	0	0	0	3	10	19	30	14	9	1	86
Modified FMS	0	0	0	0	0	2	10	20	29	14	9	1	85
Difference	0	0	0	0	0	0	0	0	0	0	0	0	-1
Percent Difference	0%	0%	0%	0%	1%	-16%	-1%	2%	-2%	-1%	-2%	23%	-1%

Source LTGen

GWh=Gigawatt-hours

4.5.2 CVP Pumping Load

Tables 4.5-6 through 4.5-8 show simulated monthly average CVP pumping load for selected locations by both long-term average and water year-type averages. The Sacramento Valley Index, as defined in D1641, is used to define the water year types.

Table 4.5-6. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average Total CVP Pumping Load

	Average Pumping Load (GWh)												
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
						Long-Term Average							
Full Simulation Period													
2006 FMS	96	125	132	112	98	92	37	54	80	132	115	96	1,169
Modified FMS	96	122	131	111	101	93	37	54	80	131	115	97	1,168
Difference	0	-3	-1	-1	3	1	0	0	0	-1	0	1	-1
Percent Difference	0%	-2%	-1%	-1%	3%	1%	0%	0%	0%	-1%	0%	1%	0%
						Water Year-Type Averages							
Wet													
2006 FMS	102	139	135	126	127	129	51	73	120	155	136	109	1,402
Modified FMS	103	138	135	125	128	130	51	73	120	155	136	108	1,401
Difference	1	-1	0	-1	2	1	0	0	0	0	0	-1	-1
Percent Difference	1%	-1%	0%	-1%	1%	1%	0%	0%	0%	0%	0%	-1%	0%
Above Normal													
2006 FMS	88	134	134	103	95	120	37	52	96	136	131	94	1,221
Modified FMS	87	134	133	101	95	121	37	52	96	134	131	95	1,216
Difference	-1	0	-1	-2	0	1	0	0	-1	-2	-1	1	-5
Percent Difference	-1%	0%	-1%	-2%	0%	1%	0%	0%	-1%	-1%	0%	1%	0%
Below Normal													
2006 FMS	108	130	141	109	93	88	32	47	71	136	118	114	1,187
Modified FMS	107	127	141	110	100	89	32	47	71	135	118	117	1,195
Difference	-1	-3	1	1	6	1	0	0	0	-1	1	3	7
Percent Difference	-1%	-2%	0%	1%	7%	1%	0%	0%	0%	-1%	0%	3%	1%
Dry													
2006 FMS	91	113	134	112	88	57	30	42	55	133	99	89	1,042
Modified FMS	91	107	133	110	91	59	29	43	55	131	99	93	1,040
Difference	0	-6	0	-1	3	2	0	0	0	-2	0	3	-2
Percent Difference	0%	-5%	0%	-1%	3%	3%	-1%	1%	0%	-2%	0%	4%	0%
Critical													
2006 FMS	86	95	111	96	60	40	26	37	26	72	72	58	782
Modified FMS	86	91	107	95	62	41	26	38	26	75	73	58	778
Difference	0	-4	-4	-1	2	1	0	0	0	2	0	-1	-4
Percent Difference	0%	-4%	-4%	-1%	3%	1%	0%	1%	-1%	3%	0%	-1%	-1%

Source LTGen

GWh=Gigawatt-hours

Table 4.5-7. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average Jones Pumping Plant Load

Analysis Period	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
	Average Pumping Load (GWh)												
	Long-Term Average												
Full Simulation Period													
2006 FMS	52	51	57	46	42	43	15	15	35	58	57	55	525
Modified FMS	52	49	57	46	43	43	15	15	35	58	57	55	525
Difference	0	-1	0	0	1	0	0	0	0	0	0	0	0
Percent Difference	0%	-2%	0%	0%	2%	1%	0%	0%	0%	-1%	0%	1%	0%
	Water Year-Type Averages												
Wet													
2006 FMS	55	54	58	51	51	54	19	21	52	66	67	61	612
Modified FMS	55	54	58	51	52	55	19	21	52	66	67	61	612
Difference	0	-1	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	1%	-1%	0%	0%	1%	1%	0%	0%	0%	0%	0%	-1%	0%
Above Normal													
2006 FMS	48	55	58	43	40	54	13	13	44	60	67	55	548
Modified FMS	48	55	57	42	40	54	13	13	43	59	66	55	546
Difference	0	0	-1	-1	0	0	0	0	0	-1	0	1	-2
Percent Difference	0%	0%	-1%	-2%	0%	0%	0%	0%	-1%	-2%	0%	1%	0%
Below Normal													
2006 FMS	57	51	62	45	40	43	12	12	32	64	61	62	540
Modified FMS	56	50	62	46	43	43	12	12	32	63	61	63	543
Difference	-1	-1	0	0	3	0	0	0	0	-1	0	1	3
Percent Difference	-2%	-2%	1%	1%	7%	1%	0%	0%	0%	-1%	0%	2%	0%
Dry													
2006 FMS	50	47	59	47	39	32	13	12	23	59	46	53	479
Modified FMS	50	45	59	46	40	33	12	13	23	58	46	54	479
Difference	0	-2	0	0	1	1	0	0	0	-1	0	1	0
Percent Difference	0%	-5%	0%	-1%	3%	3%	-2%	1%	0%	-1%	0%	3%	0%
Critical													
2006 FMS	48	43	49	40	28	22	13	13	8	31	35	37	367
Modified FMS	48	41	47	40	29	23	13	13	8	32	35	37	366
Difference	0	-2	-1	0	1	1	0	0	0	1	0	0	-1
Percent Difference	0%	-4%	-3%	0%	3%	2%	0%	0%	0%	3%	0%	-1%	0%

Source LTGen

GWh=Gigawatt-hours

Table 4.5-8. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average CVP San Luis Pumping Plant Load

	Average Pumping Load (GWh)												
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
						Long-Term Average							
Full Simulation Period													
2006 FMS	14	30	45	35	27	24	0	0	0	0	1	10	186
Modified FMS	14	29	44	35	28	25	0	0	0	0	1	10	186
Difference	0	-1	0	-1	1	0	0	0	0	0	0	0	0
Percent Difference	0%	-4%	-1%	-1%	4%	1%	-2%	0%	19%	50%	3%	3%	0%
						Water Year-Type Averages							
Wet													
2006 FMS	16	34	43	39	38	38	1	0	0	0	0	11	220
Modified FMS	16	33	43	39	39	39	1	0	0	0	0	11	220
Difference	0	-1	0	0	1	0	0	0	0	0	0	0	0
Percent Difference	2%	-2%	0%	-1%	2%	1%	0%	0%	19%	0%	-38%	-3%	0%
Above Normal													
2006 FMS	12	33	46	32	26	35	0	0	0	0	0	7	192
Modified FMS	12	33	46	31	26	35	0	0	0	0	0	8	191
Difference	0	0	0	-1	0	0	0	0	0	0	0	0	-1
Percent Difference	-1%	0%	-1%	-3%	0%	1%	0%	0%	0%	0%	0%	6%	0%
Below Normal													
2006 FMS	17	30	49	33	24	22	0	0	0	0	0	15	191
Modified FMS	16	29	49	33	26	23	0	0	0	0	0	17	193
Difference	-1	-2	0	0	3	0	0	0	0	0	0	1	2
Percent Difference	-4%	-6%	0%	1%	11%	2%	-31%	0%	0%	0%	174%	8%	1%
Dry													
2006 FMS	12	26	46	36	23	10	0	0	0	0	0	10	164
Modified FMS	12	24	45	36	24	11	0	0	0	0	0	11	163
Difference	0	-2	0	-1	1	0	0	0	0	0	0	1	-1
Percent Difference	0%	-9%	-1%	-2%	5%	4%	0%	0%	0%	13%	24%	10%	-1%
Critical													
2006 FMS	13	23	39	32	14	7	0	0	0	0	4	4	136
Modified FMS	13	21	37	32	15	7	0	0	0	1	4	4	133
Difference	0	-2	-2	-1	1	0	0	0	0	0	0	0	-3
Percent Difference	1%	-7%	-5%	-2%	7%	0%	-5%	0%	0%	90%	-1%	-4%	-2%

Source LTGen

GWh=Gigawatt-hours

4.5.3 SWP Generation

Tables 4.5-9 through 4.5-11 show simulated monthly average SWP generation for selected locations by both long-term average and water year-type averages. The Sacramento Valley Index, as defined in D1641, is used to define the water year types.

Table 4.5-9. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average Total SWP Generation

	Average Generation (GWh)												
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
						Long-Term Average							
Full Simulation Period													
2006 FMS	343	292	293	220	243	297	333	425	439	582	476	475	4,418
Modified FMS	343	292	292	220	243	297	333	425	440	583	476	474	4,418
Difference	0	0	0	0	0	0	0	0	1	1	0	-1	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
						Water Year-Type Averages							
Wet													
2006 FMS	394	357	354	433	475	602	545	664	548	634	508	659	6,174
Modified FMS	395	357	355	434	475	602	545	664	548	634	508	659	6,176
Difference	0	0	0	1	0	0	0	0	0	0	0	0	2
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	329	285	279	167	225	321	363	459	463	707	605	591	4,793
Modified FMS	331	285	276	170	224	321	363	459	466	708	604	591	4,797
Difference	2	0	-2	3	0	0	0	0	2	0	0	0	4
Percent Difference	0%	0%	-1%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	362	290	288	131	148	161	285	334	430	686	609	470	4,196
Modified FMS	360	289	287	130	148	163	286	335	431	686	610	467	4,192
Difference	-2	-1	-1	-1	0	1	1	1	1	0	1	-3	-4
Percent Difference	0%	-1%	0%	-1%	0%	1%	0%	0%	0%	0%	0%	-1%	0%
Dry													
2006 FMS	330	255	277	107	102	87	191	274	389	523	393	340	3,267
Modified FMS	329	254	277	106	102	87	190	274	390	525	392	340	3,266
Difference	-1	-1	0	-1	0	0	-1	0	2	2	-1	0	-1
Percent Difference	0%	0%	0%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Critical													
2006 FMS	245	215	203	84	84	83	111	208	265	313	246	166	2,223
Modified FMS	245	215	203	84	82	83	111	209	265	313	245	165	2,220
Difference	0	0	0	0	-2	0	0	1	0	0	-1	-1	-3
Percent Difference	0%	0%	0%	0%	-2%	0%	0%	0%	0%	0%	0%	0%	0%

Source LTGen

GWh=Gigawatt-hours

Table 4.5-10. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average Hyatt Powerhouse Generation

Analysis Period	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
						Average Generation (GWh)							
						Long-Term Average							
Full Simulation Period													
2006 FMS	117	99	103	117	123	153	148	192	202	316	201	211	1,983
Modified FMS	117	98	103	117	123	153	148	192	203	317	201	211	1,983
Difference	0	0	0	0	0	0	0	0	1	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
						Water Year-Type Averages							
Wet													
2006 FMS	131	130	136	255	269	338	259	334	274	342	217	351	3,036
Modified FMS	132	130	137	255	268	338	259	335	275	341	217	351	3,036
Difference	0	0	0	0	-1	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	114	89	100	78	105	147	127	186	210	412	300	292	2,160
Modified FMS	114	89	100	78	104	147	127	186	211	412	300	292	2,162
Difference	0	0	0	1	0	0	0	0	2	0	0	0	2
Percent Difference	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Below Normal													
2006 FMS	129	96	97	52	51	54	92	116	183	384	291	173	1,718
Modified FMS	128	95	96	52	51	54	92	115	184	384	292	171	1,714
Difference	-1	-1	-1	0	0	0	0	0	1	0	1	-2	-4
Percent Difference	-1%	-1%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	-1%	0%
Dry													
2006 FMS	114	78	87	46	40	41	93	120	177	282	135	100	1,313
Modified FMS	114	77	87	46	40	41	93	120	179	283	135	100	1,315
Difference	-1	0	0	0	0	0	0	0	2	2	0	0	2
Percent Difference	-1%	-1%	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%
Critical													
2006 FMS	79	75	66	41	32	43	79	85	97	139	63	36	835
Modified FMS	78	75	66	41	32	43	79	86	97	138	63	36	836
Difference	0	0	0	0	0	0	0	1	0	-1	0	0	0
Percent Difference	0%	-1%	0%	0%	0%	1%	0%	1%	0%	0%	0%	0%	0%

Source LTGen

GWh=Gigawatt-hours

Table 4.5-11. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average SWP San Luis Powerhouse Generation

Analysis Period	Average Generation (GWh) Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Long-Term Average													
Full Simulation Period													
2006 FMS	7	9	1	0	0	0	24	37	29	5	10	2	123
Modified FMS	7	9	1	0	0	0	24	37	28	5	10	2	123
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	-3%	0%	0%	0%	0%	0%	-1%	1%	-2%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	10	10	1	0	0	0	36	49	26	3	3	1	139
Modified FMS	10	10	1	0	0	0	36	49	26	3	3	1	138
Difference	0	0	0	0	0	0	0	0	-1	0	0	0	0
Percent Difference	0%	0%	1%	0%	0%	0%	0%	0%	-2%	1%	4%	0%	0%
Above Normal													
2006 FMS	5	10	0	0	0	0	35	48	30	1	1	0	129
Modified FMS	5	10	0	0	0	0	35	48	31	1	1	0	130
Difference	0	0	0	0	0	0	0	0	1	0	0	0	1
Percent Difference	-1%	1%	0%	0%	0%	0%	0%	0%	2%	0%	2%	0%	0%
Below Normal													
2006 FMS	7	7	0	0	0	0	30	40	32	0	2	3	122
Modified FMS	7	7	0	0	0	0	30	40	33	0	2	3	122
Difference	0	0	0	0	0	0	0	0	0	0	-1	0	0
Percent Difference	-2%	-1%	0%	0%	0%	0%	1%	0%	0%	-92%	-25%	1%	0%
Dry													
2006 FMS	6	9	0	0	0	0	12	24	29	4	22	3	109
Modified FMS	6	9	0	0	0	0	12	24	28	4	22	3	108
Difference	0	0	0	0	0	0	0	0	0	0	0	0	-1
Percent Difference	-1%	0%	-100%	0%	0%	21%	-2%	-1%	-1%	0%	-1%	4%	-1%
Critical													
2006 FMS	2	7	1	0	0	0	3	17	28	20	25	5	108
Modified FMS	2	7	1	0	0	0	3	17	27	21	24	4	108
Difference	0	0	0	0	0	0	0	0	0	1	-1	0	-1
Percent Difference	3%	1%	-10%	0%	0%	0%	-1%	-1%	-1%	3%	-2%	-5%	-1%

Source LTGen

GWh=Gigawatt-hours

4.5.4 SWP Pumping Load

Tables 4.5-12 through 4.5-15 show simulated monthly average SWP pumping load for selected locations by both long-term average and water year-type averages. The Sacramento Valley Index, as defined in D1641, is used to define the water year types.

Table 4.5-12. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average Total SWP Pumping Load

	Average Pumping Load (GWh)												
Analysis Period	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Total**
						Long-Term Average							
Full Simulation Period													
2006 FMS	748	653	700	362	413	487	482	621	698	886	918	884	7,853
Modified FMS	748	651	701	363	413	487	482	621	698	887	918	883	7,853
Difference	0	-2	1	1	0	0	0	0	0	1	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
						Water Year-Type Averages							
Wet													
2006 FMS	869	774	778	559	648	826	730	862	858	1,018	1,062	1,023	10,007
Modified FMS	870	774	779	562	651	826	729	862	858	1,019	1,063	1,024	10,017
Difference	1	1	1	3	3	-1	0	0	1	1	1	1	10
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	719	649	693	334	415	599	617	728	775	979	1,055	1,011	8,575
Modified FMS	719	648	688	340	415	598	617	727	775	980	1,055	1,011	8,573
Difference	0	-1	-6	6	0	-1	0	0	0	0	0	0	-2
Percent Difference	0%	0%	-1%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	768	672	719	303	370	421	503	603	725	999	1,068	1,028	8,178
Modified FMS	766	663	725	300	370	423	506	606	725	999	1,069	1,025	8,178
Difference	-2	-8	6	-3	0	2	3	3	0	0	1	-3	0
Percent Difference	0%	-1%	1%	-1%	0%	0%	1%	1%	0%	0%	0%	0%	0%
Dry													
2006 FMS	706	602	713	254	242	198	269	416	576	794	777	805	6,352
Modified FMS	707	598	714	253	241	197	268	416	576	796	774	805	6,343
Difference	1	-3	1	-1	-2	-1	-1	-1	-1	2	-3	0	-9
Percent Difference	0%	-1%	0%	0%	-1%	-1%	0%	0%	0%	0%	0%	0%	0%
Critical													
2006 FMS	556	454	500	195	211	151	103	322	425	513	504	404	4,339
Modified FMS	556	454	500	195	204	151	104	322	424	512	503	403	4,328
Difference	0	0	0	0	-7	0	1	0	-1	-1	-1	-1	-11
Percent Difference	0%	0%	0%	0%	-3%	0%	1%	0%	0%	0%	0%	0%	0%

Source LTGen

GWh=Gigawatt-hours

Table 4.5-12. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average Banks Pumping Plant Load

Analysis Period	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
	Average Pumping Load (GWh)												
	Long-Term Average												
Full Simulation Period													
2006 FMS	59	54	90	66	67	71	17	19	43	102	87	91	766
Modified FMS	59	53	91	66	66	71	17	19	43	102	87	91	766
Difference	0	-1	1	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	-2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Water Year-Type Averages												
Wet													
2006 FMS	68	68	92	84	91	106	26	30	71	120	122	116	994
Modified FMS	68	67	91	84	92	106	26	30	71	120	122	116	994
Difference	0	0	0	0	0	0	0	0	0	0	0	0	1
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	58	47	101	63	64	83	15	14	52	116	122	118	854
Modified FMS	58	47	101	64	64	82	15	14	52	116	122	118	854
Difference	0	0	0	1	0	0	0	0	0	0	0	0	1
Percent Difference	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Below Normal													
2006 FMS	59	59	92	57	63	69	14	14	39	121	118	106	810
Modified FMS	58	56	96	57	63	69	14	14	39	121	118	106	810
Difference	-1	-3	4	-1	0	0	0	0	0	0	1	0	0
Percent Difference	-1%	-5%	4%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Dry													
2006 FMS	54	51	95	59	49	43	14	14	25	95	42	72	613
Modified FMS	54	50	96	59	49	42	14	14	25	96	41	72	612
Difference	0	-2	0	0	0	-1	0	0	0	2	-1	0	-1
Percent Difference	0%	-3%	0%	1%	0%	-1%	0%	-1%	0%	2%	-1%	-1%	0%
Critical													
2006 FMS	46	30	64	51	45	30	10	11	8	36	8	23	362
Modified FMS	46	30	64	51	44	30	10	11	8	35	8	23	361
Difference	0	0	0	0	-1	0	0	0	0	-1	0	0	-1
Percent Difference	0%	0%	0%	0%	-2%	0%	0%	2%	-1%	-2%	0%	0%	0%

Source LTGen

GWh=Gigawatt-hours

Table 4.5-13. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average SWP San Luis Pumping Plant Load

Analysis Period	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
						Average Pumping Load (GWh)							
						Long-Term Average							
Full Simulation Period													
2006 FMS	3	12	26	40	37	34	0	0	0	9	4	8	175
Modified FMS	3	11	27	40	37	34	0	0	0	9	4	8	174
Difference	0	-1	1	0	0	0	0	0	0	0	0	0	-1
Percent Difference	-1%	-9%	2%	0%	0%	-1%	-5%	0%	0%	3%	-1%	0%	0%
						Water Year-Type Averages							
Wet													
2006 FMS	5	16	22	44	45	48	0	1	0	7	5	9	200
Modified FMS	5	15	21	44	45	48	0	1	0	7	5	9	199
Difference	0	-1	0	0	0	0	0	0	0	0	0	0	-1
Percent Difference	0%	-4%	-2%	1%	0%	0%	0%	0%	0%	1%	-1%	-1%	0%
Above Normal													
2006 FMS	5	11	38	35	30	36	0	0	0	6	6	13	179
Modified FMS	5	11	38	36	30	35	0	0	0	6	6	13	180
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	-1%	0%	0%	0%	6%	0%	0%	0%
Below Normal													
2006 FMS	2	12	26	38	40	33	0	0	0	10	8	11	179
Modified FMS	2	9	30	37	39	32	0	0	0	9	8	11	178
Difference	0	-3	4	-1	0	-1	0	0	0	0	0	0	-1
Percent Difference	-11%	-25%	15%	-1%	-1%	-2%	0%	0%	0%	-1%	-2%	1%	-1%
Dry													
2006 FMS	2	12	29	43	33	28	1	0	0	14	0	7	168
Modified FMS	2	10	29	43	33	27	1	0	0	15	0	7	166
Difference	0	-2	0	0	0	-1	0	0	0	1	0	0	-1
Percent Difference	-1%	-14%	0%	0%	0%	-3%	-1%	0%	0%	7%	4%	1%	-1%
Critical													
2006 FMS	2	4	22	38	31	16	1	0	0	9	0	0	123
Modified FMS	2	4	22	38	31	16	1	0	0	9	0	0	122
Difference	0	0	0	0	0	0	0	0	0	0	0	0	-1
Percent Difference	0%	1%	0%	-1%	-1%	0%	-8%	0%	0%	-3%	0%	3%	-1%

Source LTGen

GWh=Gigawatt-hours

Table 4.5-14. Comparison of Long-Term Average and Water Year Type Simulated Monthly Average Edmonston Pumping Plant Load

Analysis Period	Average Pumping Load (GWh) Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
Long-Term Average													
Full Simulation Period													
2006 FMS	367	314	312	139	167	201	249	321	344	405	433	416	3,668
Modified FMS	367	314	311	140	167	201	250	322	344	405	433	416	3,669
Difference	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent Difference	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Water Year-Type Averages													
Wet													
2006 FMS	426	368	354	233	276	359	377	440	408	463	486	474	4,665
Modified FMS	426	369	355	235	278	359	377	440	408	464	487	475	4,671
Difference	0	1	1	1	2	0	0	0	0	1	1	1	6
Percent Difference	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%
Above Normal													
2006 FMS	350	316	294	127	172	255	325	379	377	448	484	465	3,993
Modified FMS	350	315	291	130	173	255	325	379	377	448	485	465	3,992
Difference	0	0	-3	3	0	0	0	0	0	0	0	0	-1
Percent Difference	0%	0%	-1%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Below Normal													
2006 FMS	377	320	321	114	144	166	265	314	361	457	495	483	3,818
Modified FMS	377	318	320	113	145	168	267	316	361	457	496	481	3,818
Difference	-1	-1	-1	-1	0	2	2	2	0	0	0	-2	0
Percent Difference	0%	0%	0%	-1%	0%	1%	1%	1%	0%	0%	0%	0%	0%
Dry													
2006 FMS	347	288	315	85	88	64	138	218	295	359	387	388	2,970
Modified FMS	348	287	315	84	87	64	137	218	294	359	386	388	2,967
Difference	0	0	0	-1	-1	0	-1	0	0	0	-1	0	-3
Percent Difference	0%	0%	0%	-1%	-1%	0%	-1%	0%	0%	0%	0%	0%	0%
Critical													
2006 FMS	272	225	221	59	73	53	46	171	225	243	262	204	2,056
Modified FMS	272	225	221	59	70	53	47	171	225	243	262	204	2,052
Difference	0	0	0	0	-3	0	0	0	0	0	0	-1	-4
Percent Difference	0%	0%	0%	0%	-4%	-1%	1%	0%	0%	0%	0%	0%	0%

Source LTGen
GWh=Gigawatt-hours

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Attachment A

Trinity Reservoir Storage (TAF)
2006 FMS

Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	1,781	1,754	1,755	1,751	1,766	1,815	1,918	1,997	2,043	1,931	1,808	1,659
1923	Below Normal	1,605	1,577	1,579	1,597	1,619	1,672	1,790	1,748	1,680	1,541	1,375	1,261
1924	Critical	1,206	1,171	1,162	1,084	1,140	1,133	1,104	1,022	961	837	714	627
1925	Dry	619	696	743	716	986	1,126	1,423	1,408	1,327	1,193	1,109	1,052
1926	Dry	1,026	1,020	1,038	1,040	1,184	1,286	1,505	1,399	1,327	1,192	1,085	999
1927	Wet	972	1,128	1,323	1,441	1,679	1,857	2,084	2,073	2,099	1,977	1,863	1,706
1928	Above Normal	1,615	1,643	1,652	1,700	1,810	2,016	2,172	2,110	2,017	1,885	1,732	1,586
1929	Critical	1,493	1,419	1,411	1,219	1,244	1,294	1,310	1,342	1,288	1,113	992	905
1930	Dry	872	855	983	999	1,098	1,224	1,340	1,242	1,217	1,056	951	867
1931	Critical	834	820	810	820	839	897	920	880	854	736	615	573
1932	Dry	557	550	553	508	530	683	757	780	763	655	591	550
1933	Critical	510	498	493	490	492	593	747	734	852	761	645	606
1934	Critical	589	580	590	651	741	898	981	953	914	796	601	561
1935	Below Normal	500	565	602	586	670	731	944	975	979	886	767	684
1936	Below Normal	669	664	667	780	915	1,031	1,201	1,131	1,092	986	901	818
1937	Below Normal	785	768	752	738	742	847	1,066	1,209	1,306	1,201	1,070	1,002
1938	Wet	978	1,126	1,345	1,436	1,593	1,855	2,162	2,336	2,281	2,251	2,135	1,917
1939	Dry	1,821	1,806	1,822	1,833	1,847	1,953	2,028	1,927	1,747	1,516	1,281	1,133
1940	Above Normal	1,045	978	1,041	1,215	1,541	1,843	2,070	2,007	1,891	1,711	1,561	1,391
1941	Wet	1,335	1,316	1,455	1,676	1,927	2,100	2,300	2,420	2,447	2,270	2,150	1,975
1942	Wet	1,850	1,850	1,850	1,900	2,000	2,079	2,266	2,325	2,397	2,270	2,150	1,975
1943	Wet	1,850	1,845	1,850	1,900	2,000	2,100	2,283	2,173	2,100	1,956	1,837	1,691
1944	Dry	1,603	1,565	1,553	1,549	1,583	1,642	1,681	1,736	1,648	1,433	1,267	1,152
1945	Below Normal	1,120	1,147	1,221	1,266	1,426	1,480	1,617	1,582	1,490	1,347	1,230	1,115
1946	Below Normal	1,103	1,158	1,350	1,480	1,535	1,657	1,876	1,871	1,777	1,646	1,500	1,387
1947	Dry	1,326	1,320	1,332	1,331	1,391	1,510	1,597	1,506	1,491	1,366	1,202	1,088
1948	Below Normal	1,101	1,112	1,111	1,304	1,326	1,352	1,524	1,518	1,598	1,563	1,451	1,429
1949	Dry	1,376	1,383	1,385	1,378	1,410	1,626	1,886	1,887	1,837	1,692	1,544	1,429
1950	Below Normal	1,367	1,334	1,315	1,333	1,390	1,511	1,665	1,669	1,650	1,543	1,408	1,294
1951	Above Normal	1,357	1,472	1,730	1,820	2,000	2,100	2,226	2,158	2,074	1,927	1,778	1,633
1952	Wet	1,549	1,554	1,701	1,761	1,951	2,100	2,300	2,411	2,447	2,270	2,150	1,975
1953	Wet	1,850	1,845	1,850	1,900	2,000	2,100	2,261	2,221	2,315	2,270	2,150	1,968
1954	Above Normal	1,850	1,850	1,850	1,900	2,000	2,100	2,300	2,272	2,204	2,067	1,957	1,820
1955	Dry	1,763	1,784	1,825	1,843	1,872	1,902	1,948	1,946	1,931	1,711	1,560	1,416
1956	Wet	1,354	1,337	1,645	1,900	2,000	2,100	2,283	2,386	2,304	2,187	2,101	1,941
1957	Above Normal	1,838	1,843	1,836	1,826	1,973	2,100	2,218	2,234	2,211	2,067	1,949	1,810
1958	Wet	1,850	1,850	1,850	1,900	2,208	2,100	2,300	2,420	2,430	2,270	2,150	1,975
1959	Below Normal	1,850	1,850	1,835	1,900	2,000	2,100	2,272	2,171	2,053	1,825	1,629	1,459
1960	Dry	1,397	1,359	1,337	1,336	1,469	1,662	1,784	1,729	1,725	1,583	1,435	1,320
1961	Dry	1,260	1,243	1,293	1,337	1,529	1,626	1,816	1,844	1,879	1,733	1,586	1,444
1962	Below Normal	1,384	1,359	1,366	1,383	1,481	1,539	1,865	1,831	1,765	1,617	1,473	1,361
1963	Wet	1,463	1,512	1,678	1,719	1,999	2,073	2,300	2,324	2,264	2,119	1,998	1,792
1964	Dry	1,698	1,768	1,803	1,827	1,829	1,858	1,881	1,774	1,714	1,581	1,407	1,300
1965	Wet	1,246	1,252	1,771	1,900	1,988	2,054	2,278	2,185	2,114	1,977	1,872	1,764
1966	Below Normal	1,703	1,757	1,779	1,850	1,910	2,100	2,300	2,301	2,226	2,090	1,902	1,765
1967	Wet	1,676	1,753	1,850	1,900	2,000	2,100	2,205	2,310	2,401	2,270	2,150	1,975
1968	Below Normal	1,850	1,850	1,850	1,900	2,000	2,100	2,191	2,077	1,971	1,791	1,644	1,503
1969	Wet	1,446	1,440	1,511	1,648	1,765	1,920	2,242	2,420	2,340	2,216	2,098	1,975
1970	Wet	1,850	1,850	1,850	1,900	2,000	2,100	2,161	2,060	1,917	1,742	1,592	1,449
1971	Wet	1,350	1,444	1,570	1,793	1,923	2,100	2,242	2,277	2,285	2,262	2,146	1,975
1972	Below Normal	1,850	1,850	1,850	1,900	2,000	2,100	2,234	2,163	2,113	1,964	1,816	1,672
1973	Above Normal	1,619	1,655	1,759	1,900	2,000	2,100	2,269	2,318	2,265	2,125	1,927	1,784
1974	Wet	1,755	1,850	1,850	1,900	2,000	2,100	2,300	2,384	2,367	2,270	2,150	1,975
1975	Wet	1,850	1,843	1,847	1,869	1,957	2,100	2,225	2,321	2,431	2,270	2,150	1,975
1976	Critical	1,850	1,850	1,850	1,663	1,694	1,742	1,823	1,798	1,718	1,499	1,344	1,233
1977	Critical	1,171	1,155	1,098	1,000	991	977	947	894	854	737	511	482
1978	Above Normal	473	500	691	1,076	1,254	1,527	1,718	1,722	1,666	1,579	1,470	1,383
1979	Below Normal	1,323	1,316	1,297	1,309	1,349	1,492	1,602	1,669	1,635	1,495	1,361	1,248
1980	Above Normal	1,213	1,275	1,342	1,561	1,849	1,981	2,140	2,045	1,947	1,824	1,675	1,532
1981	Dry	1,469	1,444	1,473	1,570	1,707	1,826	1,934	1,866	1,810	1,643	1,438	1,325
1982	Wet	1,263	1,506	1,829	1,900	2,000	2,100	2,300	2,318	2,187	2,071	2,032	1,975
1983	Wet	1,850	1,850	1,850	1,900	2,000	2,100	2,300	2,420	2,447	2,270	2,150	1,975
1984	Wet	1,850	1,850	1,850	1,900	1,991	2,100	2,218	2,183	2,124	1,989	1,797	1,682
1985	Dry	1,594	1,723	1,780	1,739	1,778	1,826	1,973	1,896	1,820	1,594	1,365	1,252
1986	Wet	1,190	1,180	1,193	1,319	1,792	2,100	2,103	2,000	1,889	1,713	1,564	1,423
1987	Dry	1,369	1,336	1,326	1,335	1,411	1,622	1,769	1,723	1,542	1,317	1,153	1,033
1988	Critical	1,002	986	1,137	1,215	1,296	1,376	1,462	1,406	1,370	1,209	1,030	948
1989	Dry	916	937	953	974	1,002	1,343	1,539	1,430	1,315	1,151	1,049	967
1990	Critical	981	981	976	1,039	1,062	1,150	1,189	1,155	1,186	1,093	976	894
1991	Critical	863	847	832	816	822	894	944	967	960	851	735	654
1992	Critical	638	630	625	630	769	915	1,148	1,140	1,113	1,003	777	696
1993	Above Normal	680	671	695	757	894	1,266	1,461	1,631	1,746	1,730	1,624	1,513
1994	Critical	1,453	1,443	1,452	1,423	1,457	1,525	1,570	1,538	1,418	1,255	1,075	993
1995	Wet	962	947	931	1,332	1,586	2,019	2,257	2,332	2,318	2,270	2,150	1,975
1996	Wet	1,850	1,840	1,850	1,900	2,000	2,100	2,259	2,215	2,151	2,014	1,892	1,778
1997	Wet	1,714	1,720	1,850	1,900	1,985	2,076	2,116	1,930	1,731	1,550	1,369	1,256
1998	Wet	1,179	1,187	1,226	1,537	1,859	2,100	2,276	2,410	2,447	2,270	2,150	1,975
1999	Wet	1,850	1,850	1,850	1,900	2,000	2,100	2,290	2,330	2,350	2,216	2,108	1,975
2000	Above Normal	1,850	1,850	1,850	1,900	2,000	2,100	2,300	2,292	2,306	2,176	2,055	1,870
2001	Dry	1,810	1,777	1,767	1,767	1,797	1,967	2,066	2,027	1,876	1,663	1,458	1,349
2002	Dry	1,268	1,288	1,361	1,591	1,701	1,803	2,011	1,919	1,821	1,671	1,521	1,408
2003	Above Normal	1,345	1,307	1,491	1,803	1,914	2,069	2,269	2,335	2,410	2,270	2,087	1,902
	Average:	1,355	1,367	1,418	1,479	1,588	1,711	1,861	1,855	1,817	1,679	1,539	1,417
	Minimum:	473	498	493	490	492	593	747	734	763	655	511	482
	Maximum:	1,850	1,850	1,850	1,900	2,208	2,100	2,300	2,420	2,447	2,270	2,150	1,975
	Wet:	1,536	1,566	1,663	1,770	1,931	2,067	2,243	2,276	2,253	2,123	2,002	1,847
	Above Normal:	1,389	1,400	1,474	1,601	1,750	1,918	2,088	2,093	2,065	1,941	1,802	1,657
	Below Normal:	1,301	1,308	1,327	1,380	1,454	1,551	1,725	1,708	1,667	1,535	1,395	1,286
	Dry:	1,319	1,325	1,351	1,371	1,451	1,583	1,719	1,669	1,600	1,431	1,278	1,171
	Critical:	1,049	1,032	1,036	1,004	1,045	1,116	1,179	1,152	1,124	991	835	764

Trinity Reservoir Storage (TAF)
Modified FMS

Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	1,781	1,754	1,755	1,751	1,766	1,815	1,918	1,997	2,043	1,931	1,808	1,659
1923	Below Normal	1,605	1,577	1,579	1,597	1,619	1,672	1,790	1,748	1,680	1,541	1,375	1,261
1924	Critical	1,206	1,171	1,162	1,083	1,140	1,132	1,103	1,022	961	837	714	627
1925	Dry	619	696	743	728	999	1,139	1,436	1,421	1,339	1,206	1,075	1,018
1926	Dry	992	986	1,004	1,006	1,150	1,253	1,471	1,365	1,294	1,159	1,052	967
1927	Wet	940	1,095	1,290	1,409	1,647	1,824	2,051	2,041	2,066	1,944	1,830	1,688
1928	Above Normal	1,598	1,626	1,635	1,683	1,793	1,999	2,155	2,093	2,000	1,874	1,721	1,575
1929	Critical	1,482	1,418	1,410	1,218	1,243	1,294	1,309	1,341	1,287	1,112	991	904
1930	Dry	871	854	982	998	1,097	1,223	1,339	1,242	1,216	1,055	950	866
1931	Critical	834	819	809	819	838	896	919	879	853	735	614	572
1932	Dry	557	549	552	526	548	700	774	797	780	672	608	567
1933	Critical	527	515	510	500	500	610	763	751	869	777	661	623
1934	Critical	605	596	606	667	757	908	991	934	895	732	612	571
1935	Below Normal	560	625	662	624	707	768	982	1,012	1,016	923	819	736
1936	Below Normal	706	695	698	811	945	1,061	1,237	1,167	1,121	1,015	929	846
1937	Below Normal	813	796	780	766	764	863	1,082	1,225	1,322	1,233	1,102	1,033
1938	Wet	1,009	1,157	1,376	1,468	1,625	1,886	2,193	2,367	2,312	2,270	2,150	1,929
1939	Dry	1,829	1,814	1,830	1,841	1,855	1,957	2,033	1,934	1,765	1,533	1,299	1,153
1940	Above Normal	1,053	976	1,038	1,213	1,539	1,841	2,068	2,005	1,889	1,709	1,559	1,389
1941	Wet	1,333	1,314	1,453	1,674	1,925	2,100	2,300	2,420	2,447	2,270	2,150	1,975
1942	Wet	1,850	1,850	1,850	1,900	2,000	2,079	2,266	2,325	2,397	2,270	2,150	1,975
1943	Wet	1,850	1,751	1,801	1,900	2,000	2,100	2,283	2,173	2,100	1,956	1,837	1,691
1944	Dry	1,603	1,563	1,552	1,547	1,581	1,640	1,679	1,735	1,655	1,440	1,275	1,160
1945	Below Normal	1,128	1,155	1,229	1,275	1,434	1,488	1,626	1,590	1,499	1,356	1,238	1,124
1946	Below Normal	1,111	1,166	1,358	1,488	1,543	1,666	1,884	1,879	1,785	1,654	1,508	1,395
1947	Dry	1,334	1,328	1,340	1,339	1,399	1,518	1,605	1,514	1,499	1,374	1,210	1,096
1948	Below Normal	1,109	1,120	1,119	1,312	1,334	1,359	1,532	1,526	1,606	1,570	1,459	1,437
1949	Dry	1,383	1,390	1,392	1,386	1,418	1,634	1,894	1,895	1,844	1,699	1,551	1,407
1950	Below Normal	1,345	1,312	1,293	1,311	1,359	1,480	1,634	1,638	1,620	1,482	1,347	1,234
1951	Above Normal	1,297	1,412	1,670	1,760	1,978	2,084	2,221	2,153	2,069	1,921	1,772	1,628
1952	Wet	1,543	1,549	1,696	1,755	1,945	2,100	2,300	2,411	2,447	2,270	2,150	1,975
1953	Wet	1,850	1,845	1,850	1,900	2,000	2,100	2,261	2,221	2,315	2,270	2,150	1,968
1954	Above Normal	1,850	1,850	1,850	1,900	2,000	2,100	2,300	2,272	2,204	2,067	1,957	1,820
1955	Dry	1,763	1,784	1,825	1,843	1,872	1,902	1,948	1,961	1,946	1,727	1,575	1,431
1956	Wet	1,369	1,352	1,661	1,900	2,000	2,100	2,283	2,386	2,304	2,187	2,101	1,941
1957	Above Normal	1,838	1,843	1,836	1,826	1,973	2,100	2,218	2,234	2,211	2,067	1,949	1,810
1958	Wet	1,850	1,850	1,850	1,900	2,208	2,100	2,300	2,420	2,430	2,270	2,150	1,975
1959	Below Normal	1,850	1,850	1,835	1,900	2,000	2,100	2,272	2,171	2,053	1,825	1,647	1,477
1960	Dry	1,415	1,376	1,355	1,353	1,487	1,675	1,796	1,741	1,734	1,591	1,443	1,329
1961	Dry	1,268	1,252	1,302	1,346	1,537	1,635	1,825	1,853	1,888	1,741	1,594	1,453
1962	Below Normal	1,392	1,367	1,375	1,392	1,489	1,548	1,874	1,840	1,774	1,626	1,482	1,370
1963	Wet	1,471	1,520	1,686	1,727	2,000	2,074	2,300	2,324	2,264	2,119	1,998	1,792
1964	Dry	1,698	1,768	1,803	1,826	1,829	1,858	1,881	1,773	1,714	1,532	1,404	1,297
1965	Wet	1,243	1,249	1,768	1,900	1,988	2,054	2,278	2,185	2,114	1,977	1,872	1,764
1966	Below Normal	1,703	1,757	1,779	1,850	1,910	2,100	2,300	2,301	2,226	2,090	1,902	1,765
1967	Wet	1,676	1,753	1,850	1,900	2,000	2,100	2,205	2,310	2,401	2,270	2,150	1,975
1968	Below Normal	1,850	1,850	1,850	1,900	2,000	2,100	2,191	2,077	1,971	1,791	1,644	1,503
1969	Wet	1,446	1,440	1,505	1,641	1,759	1,914	2,236	2,420	2,340	2,216	2,098	1,975
1970	Wet	1,850	1,850	1,850	1,900	2,000	2,100	2,141	2,040	1,933	1,758	1,608	1,447
1971	Wet	1,321	1,415	1,541	1,764	1,894	2,082	2,238	2,272	2,281	2,257	2,142	1,975
1972	Below Normal	1,850	1,850	1,850	1,900	2,000	2,100	2,234	2,163	2,113	1,964	1,816	1,672
1973	Above Normal	1,619	1,655	1,759	1,900	2,000	2,100	2,269	2,318	2,265	2,125	1,927	1,784
1974	Wet	1,755	1,850	1,850	1,900	2,000	2,100	2,300	2,384	2,367	2,270	2,150	1,975
1975	Wet	1,850	1,843	1,847	1,869	1,957	2,100	2,225	2,321	2,431	2,270	2,150	1,975
1976	Critical	1,850	1,850	1,850	1,663	1,694	1,742	1,819	1,793	1,714	1,495	1,340	1,228
1977	Critical	1,166	1,151	1,066	1,000	991	977	947	894	854	737	511	482
1978	Above Normal	454	482	669	1,054	1,232	1,505	1,697	1,700	1,645	1,558	1,449	1,363
1979	Below Normal	1,302	1,295	1,276	1,288	1,328	1,471	1,581	1,648	1,614	1,475	1,341	1,228
1980	Above Normal	1,192	1,255	1,321	1,540	1,829	1,960	2,120	2,025	1,927	1,804	1,654	1,511
1981	Dry	1,449	1,424	1,453	1,549	1,687	1,805	1,914	1,846	1,790	1,630	1,433	1,320
1982	Wet	1,258	1,501	1,824	1,900	2,000	2,100	2,300	2,318	2,187	2,071	2,032	1,975
1983	Wet	1,850	1,850	1,850	1,900	2,000	2,100	2,300	2,420	2,447	2,270	2,150	1,975
1984	Wet	1,850	1,850	1,850	1,900	1,991	2,100	2,218	2,183	2,124	1,989	1,797	1,682
1985	Dry	1,594	1,723	1,780	1,739	1,778	1,826	1,973	1,896	1,820	1,594	1,378	1,266
1986	Wet	1,203	1,170	1,182	1,308	1,782	2,100	2,103	2,000	1,889	1,713	1,564	1,423
1987	Dry	1,369	1,336	1,326	1,335	1,411	1,622	1,769	1,723	1,541	1,316	1,150	1,027
1988	Critical	995	977	1,128	1,206	1,287	1,367	1,453	1,397	1,363	1,202	1,023	941
1989	Dry	910	930	946	968	995	1,336	1,533	1,424	1,309	1,145	1,043	961
1990	Critical	974	975	970	1,032	1,055	1,143	1,183	1,149	1,179	1,087	970	888
1991	Critical	856	841	825	810	815	888	937	960	954	845	729	648
1992	Critical	632	623	618	624	762	909	1,142	1,134	1,107	997	771	655
1993	Above Normal	639	617	641	704	845	1,217	1,407	1,577	1,692	1,676	1,570	1,460
1994	Critical	1,405	1,395	1,404	1,405	1,439	1,507	1,552	1,523	1,406	1,228	1,049	967
1995	Wet	936	920	905	1,305	1,559	1,993	2,231	2,306	2,291	2,270	2,150	1,975
1996	Wet	1,850	1,840	1,850	1,900	2,000	2,100	2,259	2,215	2,151	2,014	1,892	1,778
1997	Wet	1,714	1,689	1,850	1,900	1,985	2,076	2,116	1,930	1,731	1,551	1,369	1,222
1998	Wet	1,144	1,154	1,193	1,504	1,826	2,100	2,276	2,410	2,447	2,270	2,150	1,975
1999	Wet	1,850	1,850	1,850	1,900	2,000	2,100	2,290	2,330	2,350	2,216	2,108	1,975
2000	Above Normal	1,850	1,850	1,850	1,900	2,000	2,100	2,300	2,292	2,306	2,176	2,055	1,870
2001	Dry	1,810	1,777	1,767	1,767	1,797	1,967	2,067	2,027	1,879	1,667	1,461	1,352
2002	Dry	1,263	1,284	1,357	1,587	1,697	1,799	2,006	1,915	1,817	1,667	1,517	1,403
2003	Above Normal	1,341	1,303	1,487	1,799	1,910	2,065	2,265	2,331	2,406	2,270	2,087	1,902
	Average:	1,353	1,362	1,414	1,477	1,586	1,710	1,859	1,853	1,816	1,676	1,539	1,415
	Minimum:	454	482	510	500	500	610	763	751	780	672	511	482
	Maximum:	1,850	1,850	1,850	1,900	2,208	2,100	2,300	2,420	2,447	2,270	2,150	1,975
	Wet:	1,533	1,558	1,657	1,766	1,927	2,065	2,240	2,274	2,253	2,123	2,002	1,845
	Above Normal:	1,376	1,385	1,459	1,586	1,739	1,907	2,078	2,083	2,055	1,932	1,792	1,648
	Below Normal:	1,309	1,315	1,334	1,387	1,460	1,555	1,730	1,713	1,671	1,539	1,401	1,291
	Dry:	1,318	1,324	1,350	1,371	1,452	1,583	1,719	1,670	1,602	1,430	1,279	1,171
	Critical:	1,044	1,028	1,030	1,002	1,043	1,114	1,177	1,148	1,120	982	832	759

Trinity Reservoir Storage (TAF)
Difference Between Modified FMS and 2006 FMS

Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	0	0	0	0	0	0	0	0	0	0	0	0
1923	Below Normal	0	0	0	0	0	0	0	0	0	0	0	0
1924	Critical	0	0	0	0	0	0	0	0	0	0	0	0
1925	Dry	0	0	0	13	13	13	13	12	12	12	-34	-34
1926	Dry	-34	-34	-34	-34	-33	-33	-33	-33	-33	-33	-33	-33
1927	Wet	-33	-33	-33	-33	-33	-33	-33	-32	-32	-32	-32	-17
1928	Above Normal	-17	-17	-17	-17	-17	-17	-17	-17	-17	-11	-11	-11
1929	Critical	-11	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
1930	Dry	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
1931	Critical	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
1932	Dry	-1	-1	-1	18	18	18	18	17	16	16	17	17
1933	Critical	17	17	17	10	8	17	17	17	17	16	16	16
1934	Critical	16	16	16	16	16	10	10	-19	-19	-64	11	11
1935	Below Normal	60	60	60	38	38	38	37	37	37	37	52	52
1936	Below Normal	36	31	31	31	30	30	36	35	29	29	28	28
1937	Below Normal	28	28	28	28	23	17	16	16	16	32	31	31
1938	Wet	31	31	31	31	31	31	31	31	31	19	15	12
1939	Dry	8	8	8	8	8	5	5	7	17	17	17	19
1940	Above Normal	9	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
1941	Wet	-2	-2	-2	-2	-2	0	0	0	0	0	0	0
1942	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1943	Wet	0	-94	-49	0	0	0	0	0	0	0	0	0
1944	Dry	0	-2	-2	-2	-2	-2	-2	-2	7	7	8	8
1945	Below Normal	8	8	8	8	8	8	8	8	8	8	8	8
1946	Below Normal	8	8	8	8	8	8	8	8	8	8	8	8
1947	Dry	8	8	8	8	8	8	8	8	8	8	8	8
1948	Below Normal	8	8	8	8	8	8	8	8	8	8	8	8
1949	Dry	8	8	8	8	8	8	8	8	8	8	7	-22
1950	Below Normal	-22	-22	-22	-22	-31	-30	-30	-30	-30	-61	-61	-60
1951	Above Normal	-60	-60	-60	-60	-22	-16	-5	-5	-5	-5	-5	-5
1952	Wet	-5	-5	-5	-5	-5	0	0	0	0	0	0	0
1953	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1954	Above Normal	0	0	0	0	0	0	0	0	0	0	0	0
1955	Dry	0	0	0	0	0	0	0	15	15	15	15	15
1956	Wet	15	15	15	0	0	0	0	0	0	0	0	0
1957	Above Normal	0	0	0	0	0	0	0	0	0	0	0	0
1958	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1959	Below Normal	0	0	0	0	0	0	0	0	0	0	18	18
1960	Dry	18	18	18	18	18	13	13	13	9	9	9	9
1961	Dry	9	9	9	9	9	9	9	9	9	9	9	9
1962	Below Normal	9	9	9	9	9	9	8	8	8	8	8	8
1963	Wet	8	8	8	8	1	1	0	0	0	0	0	0
1964	Dry	0	0	0	0	0	0	0	0	0	-49	-3	-3
1965	Wet	-3	-3	-3	0	0	0	0	0	0	0	0	0
1966	Below Normal	0	0	0	0	0	0	0	0	0	0	0	0
1967	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1968	Below Normal	0	0	0	0	0	0	0	0	0	0	0	0
1969	Wet	0	0	-6	-6	-6	-6	-6	0	0	0	0	0
1970	Wet	0	0	0	0	0	0	-21	-21	17	16	16	-2
1971	Wet	-29	-29	-29	-29	-29	-18	-5	-5	-4	-4	-4	0
1972	Below Normal	0	0	0	0	0	0	0	0	0	0	0	0
1973	Above Normal	0	0	0	0	0	0	0	0	0	0	0	0
1974	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1975	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1976	Critical	0	0	0	0	0	0	-4	-4	-4	-4	-4	-4
1977	Critical	-4	-4	-32	0	0	0	0	0	0	0	0	0
1978	Above Normal	-19	-18	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21
1979	Below Normal	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-21	-20
1980	Above Normal	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
1981	Dry	-20	-20	-20	-20	-20	-20	-20	-20	-20	-13	-5	-5
1982	Wet	-5	-5	-5	0	0	0	0	0	0	0	0	0
1983	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1984	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1985	Dry	0	0	0	0	0	0	0	0	0	0	14	14
1986	Wet	14	-10	-10	-10	-10	0	0	0	0	0	0	0
1987	Dry	0	0	0	0	0	0	0	0	-1	-1	-3	-6
1988	Critical	-7	-9	-9	-9	-9	-9	-9	-9	-7	-7	-7	-7
1989	Dry	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7
1990	Critical	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6
1991	Critical	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6
1992	Critical	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-41
1993	Above Normal	-41	-54	-54	-54	-48	-48	-54	-54	-54	-54	-53	-53
1994	Critical	-48	-48	-48	-18	-18	-18	-18	-15	-12	-27	-27	-27
1995	Wet	-27	-27	-27	-27	-26	-26	-26	-26	-26	0	0	0
1996	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1997	Wet	0	-31	0	0	0	0	0	0	0	0	0	-35
1998	Wet	-35	-33	-33	-33	-33	0	0	0	0	0	0	0
1999	Wet	0	0	0	0	0	0	0	0	0	0	0	0
2000	Above Normal	0	0	0	0	0	0	0	0	0	0	0	0
2001	Dry	0	0	0	0	0	0	0	0	4	4	3	3
2002	Dry	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
2003	Above Normal	-4	-4	-4	-4	-4	-4	-4	-4	-4	0	0	0
	Average:	-2	-4	-4	-3	-2	-2	-2	-2	-1	-2	-1	-2
	Minimum:	-60	-94	-60	-60	-48	-48	-54	-54	-54	-64	-61	-60
	Maximum:	60	60	60	38	38	38	37	37	37	37	52	52
	Wet:	-3	-8	-6	-4	-4	-2	-2	-2	-1	0	0	-2
	Above Normal:	-13	-15	-15	-15	-11	-11	-10	-10	-10	-9	-9	-9
	Below Normal:	8	8	8	6	5	5	5	5	5	3	6	6
	Dry:	-1	-1	-1	1	1	0	0	1	2	0	1	-1
	Critical:	-5	-4	-6	-2	-2	-2	-2	-4	-4	-9	-3	-5

Shasta Reservoir Storage (TAF)
2006 FMS

Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	2,759	2,611	2,751	2,893	3,269	3,713	4,314	4,552	4,183	3,701	3,302	3,081
1923	Below Normal	3,013	2,815	2,951	3,158	3,300	3,437	3,898	3,671	3,331	2,941	2,644	2,635
1924	Critical	2,582	2,527	2,507	2,623	2,833	2,857	2,619	2,328	1,950	1,574	1,313	1,224
1925	Dry	1,221	1,382	1,491	1,721	2,936	3,304	3,986	4,123	3,869	3,343	2,964	2,866
1926	Dry	2,755	2,734	2,772	2,816	3,564	3,721	4,003	3,874	3,392	2,819	2,481	2,367
1927	Wet	2,275	2,730	3,172	3,612	3,462	4,105	4,552	4,552	4,224	3,740	3,354	2,697
1928	Above Normal	2,609	2,719	2,829	3,056	3,550	3,965	4,541	4,491	3,976	3,315	2,924	2,562
1929	Critical	2,432	2,319	2,390	2,654	2,842	3,013	3,057	2,935	2,657	2,266	1,993	1,935
1930	Dry	1,826	1,760	2,303	2,504	2,905	3,401	3,540	3,521	3,139	2,749	2,457	2,429
1931	Critical	2,331	2,322	2,311	2,393	2,481	2,649	2,377	2,116	1,782	1,346	1,053	925
1932	Dry	803	789	977	1,220	1,336	1,794	1,903	2,100	1,924	1,640	1,427	1,325
1933	Critical	1,226	1,194	1,183	1,192	1,229	1,826	2,003	2,097	1,922	1,576	1,171	1,071
1934	Critical	968	917	1,041	1,326	1,641	1,895	1,877	1,726	1,405	1,023	827	691
1935	Below Normal	610	727	761	1,134	1,444	1,835	2,875	3,196	2,881	2,460	2,141	2,072
1936	Below Normal	1,982	1,923	1,916	2,573	3,460	3,755	3,974	3,896	3,636	3,135	2,737	2,631
1937	Below Normal	2,465	2,340	2,304	2,279	2,359	3,024	3,724	3,968	3,766	3,354	3,050	2,943
1938	Wet	2,895	3,252	3,310	3,624	3,560	3,416	4,058	4,552	4,422	3,976	3,624	3,092
1939	Dry	3,117	2,968	3,140	3,274	3,399	3,818	3,653	3,468	3,145	2,597	2,225	2,226
1940	Above Normal	2,160	2,071	2,208	3,103	3,252	3,435	4,131	4,137	3,746	3,146	2,763	2,732
1941	Wet	2,639	2,415	3,293	3,317	3,423	3,940	4,456	4,552	4,441	4,150	3,700	3,198
1942	Wet	3,174	2,817	3,316	3,389	3,516	3,795	4,451	4,552	4,466	4,102	3,700	3,188
1943	Wet	3,067	2,717	2,970	3,541	3,848	4,118	4,552	4,552	4,274	3,711	3,357	2,919
1944	Dry	2,844	2,465	2,471	2,518	2,833	3,158	3,192	3,214	3,056	2,702	2,466	2,461
1945	Below Normal	2,414	2,563	2,838	3,058	3,758	4,000	4,164	4,297	4,078	3,627	3,279	3,213
1946	Below Normal	3,143	3,252	3,265	3,622	3,805	4,124	4,297	4,268	3,898	3,448	3,116	3,041
1947	Dry	2,886	2,931	3,047	3,048	3,314	3,838	3,930	3,625	3,386	2,773	2,439	2,400
1948	Below Normal	2,452	2,465	2,468	3,036	3,121	3,457	4,364	4,552	4,500	3,949	3,571	3,400
1949	Dry	3,238	3,199	3,216	3,209	3,355	4,071	4,397	4,441	4,039	3,419	3,038	2,981
1950	Below Normal	2,861	2,820	2,787	3,034	3,378	3,753	4,134	4,126	3,819	3,395	3,096	3,062
1951	Above Normal	3,200	3,252	3,322	3,624	3,794	4,222	4,336	4,488	4,047	3,399	3,034	2,825
1952	Wet	2,750	2,663	3,306	3,604	3,739	4,022	4,290	4,552	4,466	4,150	3,700	3,320
1953	Wet	3,200	2,882	3,326	3,366	3,654	4,086	4,439	4,552	4,500	4,030	3,700	3,187
1954	Above Normal	3,156	2,940	3,098	3,552	3,661	4,106	4,546	4,552	4,252	3,649	3,318	3,047
1955	Dry	2,942	2,873	3,122	3,210	3,363	3,531	3,761	3,943	3,679	3,160	2,945	2,998
1956	Wet	2,924	2,946	3,252	3,252	3,288	3,970	4,503	4,552	4,333	3,997	3,700	3,136
1957	Above Normal	3,166	2,764	2,720	2,793	3,453	4,129	4,401	4,552	4,239	3,637	3,299	3,180
1958	Wet	3,250	3,183	3,338	3,531	4,433	3,416	4,173	4,552	4,500	4,150	3,700	3,343
1959	Below Normal	3,200	2,855	2,865	3,648	3,777	4,221	4,263	4,147	3,650	3,107	2,731	2,895
1960	Dry	2,731	2,561	2,499	2,711	3,424	4,090	4,165	4,303	3,871	3,239	2,971	2,922
1961	Dry	2,772	2,878	3,339	3,539	3,914	4,280	4,448	4,467	4,121	3,483	3,037	2,978
1962	Below Normal	2,749	2,832	3,129	3,220	3,675	4,199	4,419	4,357	4,010	3,401	3,070	2,944
1963	Wet	3,250	3,252	3,349	3,461	3,944	4,226	4,137	4,552	4,288	3,699	3,368	2,859
1964	Dry	2,928	3,112	3,169	3,557	3,780	3,929	3,762	3,619	3,395	2,897	2,665	2,670
1965	Wet	2,638	2,751	3,252	3,368	3,713	3,874	4,500	4,546	4,206	3,769	3,501	3,060
1966	Below Normal	2,891	2,927	3,047	3,531	3,926	4,229	4,552	4,433	3,928	3,299	2,974	2,846
1967	Wet	2,676	3,013	3,335	3,551	3,920	4,033	4,479	4,552	4,500	4,113	3,700	3,290
1968	Below Normal	3,204	2,970	3,062	3,239	3,654	4,226	4,288	4,223	3,776	3,182	2,989	2,998
1969	Wet	2,961	3,032	3,354	3,358	3,480	4,030	4,434	4,552	4,328	3,932	3,573	3,200
1970	Wet	3,205	3,034	3,317	3,252	3,431	4,021	4,064	4,005	3,751	3,176	2,921	2,363
1971	Wet	2,250	2,679	3,319	3,515	3,848	3,873	4,382	4,552	4,468	3,980	3,691	3,302
1972	Below Normal	3,200	2,938	3,081	3,417	3,800	4,249	4,499	4,452	4,015	3,401	3,128	3,091
1973	Above Normal	3,135	3,252	3,346	3,552	3,636	4,162	4,461	4,532	4,086	3,484	3,236	3,167
1974	Wet	3,200	3,252	3,267	3,252	3,694	3,416	4,289	4,552	4,349	4,150	3,700	3,362
1975	Wet	3,250	2,828	3,003	3,150	3,800	3,756	4,341	4,552	4,348	4,039	3,700	3,207
1976	Critical	3,250	3,027	3,132	3,367	3,479	3,666	3,733	3,619	3,261	2,844	2,826	2,900
1977	Critical	2,840	2,700	2,600	2,352	2,391	2,383	2,003	1,894	1,401	905	590	650
1978	Above Normal	557	621	1,079	2,992	3,567	4,000	4,552	4,552	4,165	3,719	3,382	3,340
1979	Below Normal	3,176	2,901	2,833	2,922	3,258	3,765	4,032	4,207	3,781	3,366	3,158	3,111
1980	Above Normal	3,116	3,225	3,361	3,528	3,292	3,940	4,229	4,221	3,837	3,398	3,105	3,117
1981	Dry	3,052	2,763	2,886	3,166	3,573	4,175	4,411	4,240	3,589	2,980	2,683	2,682
1982	Wet	2,692	3,252	3,276	3,616	3,530	3,953	4,094	4,486	4,340	4,024	3,700	3,400
1983	Wet	3,250	3,252	3,328	3,371	3,252	3,667	4,074	4,552	4,500	4,150	3,700	3,400
1984	Wet	3,250	3,252	3,285	3,650	3,994	4,246	4,490	4,500	4,196	3,593	3,430	2,849
1985	Dry	2,922	3,252	3,360	3,476	3,648	3,860	3,961	3,687	3,263	2,835	2,543	2,548
1986	Wet	2,535	2,507	2,662	3,211	3,252	3,534	3,975	3,964	3,561	3,199	2,909	2,906
1987	Dry	2,927	2,739	2,751	2,889	3,229	3,955	3,898	3,588	3,039	2,519	2,308	2,280
1988	Critical	2,116	2,100	2,597	2,974	3,018	3,139	3,116	3,085	2,676	2,129	1,935	1,894
1989	Dry	1,771	1,973	2,055	2,158	2,261	3,638	4,099	3,835	3,468	2,891	2,553	2,544
1990	Critical	2,676	2,623	2,611	2,857	2,954	3,218	3,036	3,205	3,035	2,481	2,256	2,235
1991	Critical	2,166	2,138	2,122	2,003	2,032	2,458	2,619	2,576	2,289	1,900	1,707	1,672
1992	Critical	1,568	1,444	1,441	1,476	2,119	2,564	2,813	2,495	1,896	1,471	1,116	1,042
1993	Above Normal	848	743	967	1,612	2,342	3,804	4,431	4,552	4,500	3,900	3,641	3,331
1994	Critical	3,200	2,851	2,924	3,128	3,352	3,525	3,360	3,275	2,842	2,206	1,816	1,770
1995	Wet	1,615	1,585	1,631	3,252	3,743	3,417	4,217	4,552	4,500	4,150	3,700	3,400
1996	Wet	3,250	2,813	3,179	3,545	3,503	4,010	4,432	4,552	4,338	3,896	3,629	3,217
1997	Wet	2,986	2,775	3,252	3,252	3,737	3,956	4,013	3,775	3,425	2,901	2,726	2,305
1998	Wet	2,132	2,087	2,333	3,339	3,252	3,504	4,329	4,552	4,500	4,150	3,700	3,400
1999	Wet	3,250	3,252	3,349	3,640	3,570	3,980	4,522	4,552	4,320	3,837	3,561	3,200
2000	Above Normal	3,093	2,713	2,727	3,425	3,282	3,976	4,552	4,552	4,189	3,616	3,316	3,155
2001	Dry	3,036	2,698	2,702	2,858	3,294	3,789	3,896	3,698	3,200	2,791	2,629	2,696
2002	Dry	2,457	2,636	3,301	3,678	4,022	4,411	4,475	4,289	3,813	3,328	3,049	2,976
2003	Above Normal	2,769	2,666	3,291	3,515	3,772	4,253	4,552	4,552	4,243	3,556	3,321	3,161
	Average:	2,635	2,585	2,759	3,030	3,301	3,662	3,962	3,991	3,690	3,210	2,897	2,716
	Minimum:	557	621	761	1,134	1,229	1,794	1,877	1,726	1,401	905	590	650
	Maximum:	3,250	3,252	3,361	3,678	4,433	4,411	4,552	4,552	4,500	4,150	3,700	3,400
	Wet:	2,868	2,855	3,145	3,424	3,638	3,860	4,317	4,474	4,290	3,876	3,529	3,108
	Above Normal:	2,547	2,465	2,642	3,137	3,406	3,975	4,421	4,478	4,122	3,543	3,220	3,058
	Below Normal:	2,668	2,595	2,665	2,991	3,337	3,734	4,106	4,128	3,791	3,290	2,977	2,920
	Dry:	2,568	2,539	2,700	2,864	3,231	3,709	3,860	3,780	3,410	2,898	2,604	2,575
	Critical:	2,280	2,180	2,238	2,362	2,531	2,766	2,718	2,612	2,260	1,810	1,550	1,501

Shasta Reservoir Storage (TAF)
Modified FMS

Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	2,759	2,611	2,751	2,893	3,269	3,713	4,314	4,552	4,183	3,701	3,302	3,081
1923	Below Normal	3,011	2,814	2,950	3,156	3,299	3,435	3,896	3,670	3,330	2,940	2,643	2,634
1924	Critical	2,581	2,526	2,506	2,623	2,833	2,869	2,631	2,340	1,966	1,598	1,343	1,254
1925	Dry	1,250	1,412	1,521	1,738	2,953	3,321	4,003	4,139	3,883	3,349	3,015	2,916
1926	Dry	2,805	2,784	2,822	2,866	3,614	3,772	4,053	3,913	3,428	2,855	2,536	2,444
1927	Wet	2,309	2,764	3,205	3,645	3,462	4,105	4,552	4,552	4,224	3,740	3,354	2,682
1928	Above Normal	2,594	2,712	2,821	3,049	3,542	3,965	4,541	4,491	3,986	3,319	2,920	2,524
1929	Critical	2,384	2,318	2,389	2,654	2,841	3,012	3,055	2,954	2,687	2,286	2,010	1,950
1930	Dry	1,822	1,738	2,281	2,483	2,884	3,380	3,519	3,500	3,120	2,763	2,473	2,445
1931	Critical	2,337	2,290	2,279	2,361	2,449	2,616	2,332	2,069	1,736	1,430	1,129	990
1932	Dry	865	851	1,040	1,264	1,380	1,838	1,947	2,144	1,968	1,684	1,469	1,367
1933	Critical	1,268	1,236	1,225	1,234	1,271	1,868	2,027	2,119	1,968	1,657	1,251	1,150
1934	Critical	1,039	980	1,103	1,388	1,703	1,963	1,944	1,820	1,462	1,149	904	794
1935	Below Normal	651	768	802	1,197	1,508	1,898	2,938	3,258	2,941	2,513	2,177	2,107
1936	Below Normal	2,033	1,980	1,973	2,630	3,517	3,813	4,025	3,945	3,689	3,179	2,778	2,671
1937	Below Normal	2,504	2,379	2,343	2,318	2,401	3,074	3,774	4,018	3,815	3,382	3,076	2,970
1938	Wet	2,922	3,252	3,310	3,624	3,560	3,416	4,058	4,552	4,422	3,989	3,640	3,112
1939	Dry	3,140	2,987	3,159	3,292	3,417	3,840	3,683	3,496	3,162	2,614	2,242	2,251
1940	Above Normal	2,171	2,068	2,205	3,100	3,252	3,435	4,131	4,138	3,748	3,148	2,772	2,679
1941	Wet	2,580	2,388	3,293	3,317	3,423	3,940	4,456	4,552	4,441	4,150	3,700	3,198
1942	Wet	3,174	2,817	3,316	3,389	3,516	3,795	4,451	4,552	4,466	4,102	3,700	3,188
1943	Wet	3,067	2,792	3,000	3,541	3,848	4,118	4,552	4,552	4,274	3,711	3,357	2,907
1944	Dry	2,832	2,463	2,469	2,517	2,831	3,156	3,190	3,212	3,066	2,725	2,497	2,491
1945	Below Normal	2,398	2,547	2,823	3,043	3,742	3,985	4,149	4,282	4,064	3,617	3,271	3,205
1946	Below Normal	3,127	3,252	3,265	3,622	3,805	4,124	4,297	4,268	3,897	3,446	3,114	3,040
1947	Dry	2,879	2,924	3,040	3,041	3,307	3,831	3,923	3,618	3,412	2,801	2,465	2,426
1948	Below Normal	2,477	2,491	2,494	3,062	3,131	3,467	4,374	4,552	4,500	3,955	3,568	3,400
1949	Dry	3,237	3,197	3,214	3,207	3,353	4,071	4,397	4,441	4,038	3,424	3,040	3,012
1950	Below Normal	2,874	2,819	2,748	2,995	3,347	3,722	4,104	4,097	3,791	3,406	3,108	3,074
1951	Above Normal	3,200	3,252	3,322	3,624	3,794	4,215	4,320	4,472	4,033	3,384	3,021	2,789
1952	Wet	2,715	2,669	3,306	3,604	3,739	4,022	4,290	4,552	4,465	4,150	3,700	3,320
1953	Wet	3,200	2,882	3,326	3,366	3,654	4,086	4,439	4,552	4,500	4,030	3,700	3,187
1954	Above Normal	3,156	2,940	3,098	3,552	3,661	4,106	4,546	4,552	4,246	3,643	3,312	3,047
1955	Dry	2,941	2,866	3,115	3,204	3,356	3,525	3,754	3,911	3,654	3,149	2,933	2,985
1956	Wet	2,883	2,864	3,252	3,252	3,288	3,970	4,503	4,552	4,333	3,997	3,700	3,136
1957	Above Normal	3,166	2,764	2,720	2,794	3,453	4,129	4,401	4,552	4,239	3,637	3,299	3,180
1958	Wet	3,250	3,180	3,338	3,531	4,433	3,416	4,173	4,552	4,500	4,150	3,700	3,343
1959	Below Normal	3,200	2,855	2,865	3,648	3,777	4,221	4,263	4,146	3,650	3,108	2,756	2,916
1960	Dry	2,701	2,584	2,499	2,711	3,423	4,095	4,176	4,314	3,852	3,263	2,948	2,911
1961	Dry	2,740	2,847	3,308	3,508	3,914	4,280	4,422	4,429	4,080	3,442	3,008	2,949
1962	Below Normal	2,734	2,813	3,110	3,215	3,675	4,199	4,418	4,354	4,005	3,385	3,054	2,943
1963	Wet	3,250	3,252	3,349	3,461	3,944	4,226	4,137	4,552	4,288	3,699	3,368	2,859
1964	Dry	2,928	3,111	3,168	3,557	3,779	3,928	3,761	3,618	3,390	3,020	2,755	2,759
1965	Wet	2,699	2,811	3,252	3,368	3,713	3,874	4,500	4,545	4,205	3,768	3,499	3,058
1966	Below Normal	2,895	2,935	3,055	3,539	3,934	4,229	4,552	4,433	3,905	3,276	2,971	2,860
1967	Wet	2,643	2,980	3,335	3,551	3,920	4,033	4,479	4,552	4,500	4,113	3,700	3,290
1968	Below Normal	3,204	2,969	3,061	3,237	3,654	4,226	4,288	4,223	3,752	3,158	2,981	3,004
1969	Wet	2,945	3,015	3,344	3,358	3,480	4,030	4,434	4,552	4,328	3,932	3,573	3,200
1970	Wet	3,205	3,037	3,317	3,252	3,431	4,021	4,085	4,026	3,734	3,159	2,890	2,347
1971	Wet	2,221	2,656	3,319	3,515	3,848	3,873	4,369	4,552	4,468	3,979	3,690	3,298
1972	Below Normal	3,200	2,932	3,076	3,412	3,795	4,249	4,499	4,452	4,047	3,433	3,156	3,108
1973	Above Normal	3,165	3,252	3,346	3,552	3,636	4,162	4,461	4,532	4,086	3,484	3,236	3,167
1974	Wet	3,200	3,252	3,267	3,252	3,694	3,416	4,289	4,552	4,349	4,150	3,700	3,362
1975	Wet	3,250	2,828	3,002	3,150	3,800	3,756	4,341	4,552	4,348	4,039	3,700	3,207
1976	Critical	3,250	3,027	3,132	3,367	3,479	3,666	3,737	3,632	3,256	2,825	2,788	2,861
1977	Critical	2,785	2,644	2,568	2,275	2,314	2,316	1,944	1,835	1,348	855	599	633
1978	Above Normal	575	620	1,055	2,968	3,567	4,000	4,552	4,552	4,165	3,719	3,382	3,340
1979	Below Normal	3,176	2,901	2,833	2,922	3,258	3,765	4,032	4,207	3,783	3,367	3,160	3,111
1980	Above Normal	3,119	3,228	3,365	3,528	3,292	3,940	4,229	4,221	3,838	3,400	3,107	3,119
1981	Dry	3,055	2,776	2,898	3,178	3,586	4,188	4,424	4,253	3,598	2,982	2,686	2,685
1982	Wet	2,696	3,252	3,276	3,616	3,530	3,953	4,094	4,486	4,340	4,024	3,700	3,400
1983	Wet	3,250	3,252	3,328	3,371	3,252	3,667	4,074	4,552	4,500	4,150	3,700	3,400
1984	Wet	3,250	3,252	3,285	3,650	3,994	4,246	4,490	4,500	4,196	3,593	3,430	2,849
1985	Dry	2,922	3,252	3,360	3,476	3,648	3,860	3,961	3,686	3,262	2,853	2,573	2,579
1986	Wet	2,564	2,560	2,715	3,263	3,252	3,534	3,975	3,966	3,565	3,201	2,912	2,908
1987	Dry	2,929	2,737	2,731	2,868	3,208	3,934	3,886	3,586	3,038	2,514	2,302	2,267
1988	Critical	2,093	2,069	2,567	2,943	2,968	3,079	3,057	3,030	2,654	2,131	1,932	1,889
1989	Dry	1,757	1,959	2,041	2,144	2,248	3,625	4,085	3,743	3,385	2,768	2,411	2,397
1990	Critical	2,534	2,561	2,559	2,804	2,901	3,166	2,983	3,152	2,990	2,472	2,262	2,228
1991	Critical	2,129	2,069	2,053	1,938	1,967	2,393	2,555	2,512	2,225	1,823	1,606	1,571
1992	Critical	1,460	1,329	1,326	1,360	2,004	2,449	2,699	2,407	1,837	1,288	940	914
1993	Above Normal	726	650	874	1,519	2,243	3,705	4,338	4,552	4,500	3,902	3,644	3,341
1994	Critical	3,200	2,853	2,926	3,100	3,325	3,498	3,333	3,245	2,807	2,187	1,773	1,727
1995	Wet	1,558	1,527	1,574	3,252	3,743	3,417	4,217	4,552	4,500	4,150	3,700	3,400
1996	Wet	3,250	2,816	3,181	3,547	3,503	4,010	4,432	4,552	4,338	3,896	3,629	3,217
1997	Wet	2,986	2,769	3,252	3,252	3,737	3,956	4,013	3,775	3,425	2,895	2,720	2,233
1998	Wet	2,070	2,054	2,300	3,339	3,252	3,504	4,329	4,552	4,500	4,150	3,700	3,400
1999	Wet	3,250	3,252	3,349	3,640	3,570	3,980	4,522	4,552	4,320	3,837	3,561	3,200
2000	Above Normal	3,093	2,713	2,727	3,425	3,282	3,976	4,552	4,552	4,189	3,616	3,316	3,157
2001	Dry	3,036	2,698	2,702	2,857	3,294	3,789	3,895	3,697	3,200	2,793	2,631	2,698
2002	Dry	2,451	2,630	3,295	3,678	4,022	4,411	4,476	4,290	3,814	3,362	3,086	3,012
2003	Above Normal	2,797	2,676	3,291	3,515	3,772	4,253	4,552	4,552	4,243	3,551	3,317	3,157
	Average:	2,631	2,583	2,757	3,028	3,298	3,660	3,959	3,989	3,688	3,213	2,900	2,718
	Minimum:	575	620	802	1,197	1,271	1,838	1,944	1,820	1,348	855	599	633
	Maximum:	3,250	3,252	3,365	3,678	4,433	4,411	4,552	4,552	4,500	4,150	3,700	3,400
	Wet:	2,861	2,853	3,146	3,427	3,638	3,860	4,317	4,475	4,290	3,875	3,528	3,104
	Above Normal:	2,543	2,457	2,631	3,127	3,397	3,967	4,412	4,477	4,121	3,542	3,219	3,049
	Below Normal:	2,677	2,604	2,671	3,000	3,346	3,743	4,115	4,136	3,798	3,297	2,987	2,932
	Dry:	2,572	2,545	2,704	2,866	3,234	3,713	3,864	3,777	3,408	2,909	2,615	2,589
	Critical:	2,255	2,159	2,219	2,337	2,505	2,741	2,691	2,593	2,245	1,808	1,545	1,497

Shasta Reservoir Storage (TAF)
Difference Between Modified FMS and 2006 FMS

Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	0	0	0	0	0	0	0	0	0	0	0	0
1923	Below Normal	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
1924	Critical	-1	-1	-1	0	0	12	13	12	16	24	30	30
1925	Dry	30	30	30	17	17	17	17	16	15	7	51	51
1926	Dry	50	50	50	50	50	50	50	39	35	36	55	77
1927	Wet	34	34	34	34	0	0	0	0	0	0	0	-15
1928	Above Normal	-15	-8	-8	-8	-8	0	0	0	10	4	-4	-38
1929	Critical	-48	-1	-1	-1	-1	-1	-2	19	30	20	17	14
1930	Dry	-3	-21	-21	-21	-21	-21	-21	-21	-20	13	16	16
1931	Critical	5	-33	-33	-33	-33	-32	-46	-46	-46	84	76	65
1932	Dry	63	63	62	44	44	44	44	43	44	44	42	42
1933	Critical	42	42	42	42	42	42	24	22	46	81	80	79
1934	Critical	71	62	62	62	62	68	67	94	57	126	78	103
1935	Below Normal	41	41	41	63	63	63	63	62	60	53	36	35
1936	Below Normal	51	57	57	57	57	57	51	49	53	44	41	40
1937	Below Normal	39	39	39	39	42	50	51	50	49	28	26	26
1938	Wet	26	0	0	0	0	0	0	0	0	12	16	19
1939	Dry	23	18	18	18	18	22	30	29	17	17	17	24
1940	Above Normal	11	-3	-3	-3	0	0	0	1	2	2	9	-52
1941	Wet	-60	-27	0	0	0	0	0	0	0	0	0	0
1942	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1943	Wet	0	76	31	0	0	0	0	0	0	0	0	-12
1944	Dry	-12	-2	-2	-2	-2	-2	-2	-2	10	23	31	29
1945	Below Normal	-15	-15	-15	-15	-15	-15	-15	-15	-15	-10	-9	-8
1946	Below Normal	-16	0	0	0	0	0	0	-1	-1	-2	-2	-1
1947	Dry	-7	-7	-7	-7	-7	-7	-7	-7	26	28	26	26
1948	Below Normal	26	26	26	25	10	10	10	0	0	5	-3	0
1949	Dry	-2	-2	-2	-2	-2	0	0	-1	-1	4	2	31
1950	Below Normal	13	-1	-40	-39	-31	-31	-30	-29	-29	11	12	12
1951	Above Normal	0	0	0	0	0	-6	-16	-15	-15	-14	-14	-35
1952	Wet	-35	6	0	0	0	0	0	0	0	0	0	0
1953	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1954	Above Normal	0	0	0	0	0	0	0	0	-6	-6	-6	1
1955	Dry	-1	-6	-6	-6	-6	-6	-7	-33	-25	-11	-12	-12
1956	Wet	-41	-82	0	0	0	0	0	0	0	0	0	0
1957	Above Normal	0	0	0	0	0	0	0	0	0	0	0	-1
1958	Wet	0	-3	0	0	0	0	0	0	0	0	0	0
1959	Below Normal	0	0	0	0	0	0	0	-1	0	0	25	21
1960	Dry	-30	24	0	0	0	5	11	12	-19	24	-24	-12
1961	Dry	-31	-31	-31	-31	0	0	-26	-38	-41	-41	-30	-29
1962	Below Normal	-15	-19	-19	-5	0	0	-1	-3	-5	-16	-16	-1
1963	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1964	Dry	0	-1	-1	-1	-1	-1	-1	-1	-5	124	90	89
1965	Wet	60	60	0	0	0	0	0	0	-1	-1	-1	-1
1966	Below Normal	4	8	8	8	8	0	0	-1	-22	-22	-4	14
1967	Wet	-33	-33	0	0	0	0	0	0	0	0	0	0
1968	Below Normal	0	-1	-1	-1	0	0	0	0	-25	-25	-8	6
1969	Wet	-17	-17	-10	0	0	0	0	0	0	0	0	0
1970	Wet	0	3	0	0	0	0	21	20	-17	-17	-31	-16
1971	Wet	-29	-23	0	0	0	0	-13	0	1	0	0	-4
1972	Below Normal	0	-5	-5	-5	-5	0	0	0	32	32	28	18
1973	Above Normal	30	0	0	0	0	0	0	0	0	0	0	0
1974	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1975	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1976	Critical	0	0	0	0	0	0	4	13	-5	-19	-39	-39
1977	Critical	-55	-56	-33	-77	-77	-67	-59	-59	-53	-51	9	-17
1978	Above Normal	18	-1	-24	-24	0	0	0	0	0	0	0	0
1979	Below Normal	0	0	0	0	0	0	0	0	1	1	2	0
1980	Above Normal	4	4	4	0	0	0	0	1	1	2	2	3
1981	Dry	3	12	12	12	12	12	12	12	9	2	3	3
1982	Wet	3	0	0	0	0	0	0	0	0	0	0	0
1983	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1984	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1985	Dry	0	0	0	0	0	0	0	-1	-1	18	30	30
1986	Wet	29	53	53	53	0	0	0	2	4	1	3	2
1987	Dry	2	-2	-21	-21	-21	-21	-12	-2	-1	-5	-5	-13
1988	Critical	-22	-30	-30	-30	-50	-59	-59	-55	-22	2	-4	-5
1989	Dry	-13	-13	-13	-13	-13	-13	-13	-92	-82	-122	-143	-147
1990	Critical	-141	-62	-52	-52	-52	-52	-52	-52	-45	-9	6	-6
1991	Critical	-37	-69	-69	-65	-65	-65	-64	-64	-64	-77	-101	-101
1992	Critical	-108	-116	-115	-115	-115	-115	-115	-88	-59	-183	-176	-128
1993	Above Normal	-122	-93	-93	-93	-99	-99	-93	0	0	2	4	10
1994	Critical	0	2	2	-27	-27	-27	-27	-30	-35	-19	-43	-43
1995	Wet	-57	-57	-57	0	0	0	0	0	0	0	0	0
1996	Wet	0	3	3	3	0	0	0	0	0	0	0	0
1997	Wet	0	-7	0	0	0	0	0	0	0	-6	-6	-71
1998	Wet	-62	-33	-33	0	0	0	0	0	0	0	0	0
1999	Wet	0	0	0	0	0	0	0	0	0	0	0	0
2000	Above Normal	0	0	0	0	0	0	0	0	0	0	0	2
2001	Dry	0	0	0	0	0	0	0	0	0	2	3	2
2002	Dry	-6	-6	-6	0	0	0	0	0	1	34	37	36
2003	Above Normal	28	10	0	0	0	0	0	0	0	-4	-4	-4
	Average:	-4	-2	-2	-2	-3	-2	-3	-2	-2	3	3	2
	Minimum:	-141	-116	-115	-115	-115	-115	-115	-92	-82	-183	-176	-147
	Maximum:	71	76	62	63	63	68	67	94	60	126	90	103
	Wet:	-7	-2	1	3	0	0	0	1	0	0	-1	-4
	Above Normal:	-4	-8	-10	-11	-9	-9	-9	-1	-1	-1	-1	-10
	Below Normal:	9	9	6	9	9	9	9	8	7	7	9	12
	Dry:	4	6	3	2	4	4	4	-2	-2	11	11	13
	Critical:	-25	-22	-19	-25	-26	-25	-26	-20	-15	-2	-6	-4

Oroville Reservoir Storage (TAF)
2006 FMS

Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	2,293	2,191	2,139	2,240	2,577	2,875	3,417	3,538	3,538	3,107	2,824	2,331
1923	Below Normal	2,151	2,052	2,072	2,292	2,400	2,591	2,950	3,088	3,063	2,507	2,023	1,718
1924	Critical	1,503	1,309	1,213	1,232	1,372	1,418	1,375	1,296	1,196	1,038	921	885
1925	Dry	892	936	1,001	1,138	1,713	1,982	2,280	2,424	2,243	1,912	1,623	1,358
1926	Dry	1,248	1,190	1,120	1,233	1,693	1,962	2,589	2,518	2,203	1,760	1,467	1,244
1927	Wet	1,155	1,337	1,252	1,513	2,606	2,999	3,396	3,538	3,538	2,977	2,498	1,886
1928	Above Normal	1,610	1,614	1,532	1,671	1,782	2,797	3,234	3,363	3,087	2,470	1,957	1,463
1929	Critical	1,248	1,078	1,001	1,013	1,127	1,251	1,245	1,244	1,140	968	837	809
1930	Dry	780	767	1,252	1,512	1,669	2,132	2,475	2,625	2,401	1,823	1,541	1,244
1931	Critical	1,166	1,078	1,020	1,123	1,248	1,402	1,329	1,280	1,223	1,042	905	874
1932	Dry	861	876	827	1,029	1,213	1,452	1,721	2,061	2,055	1,616	1,473	1,331
1933	Critical	1,247	1,112	1,063	1,135	1,222	1,190	1,245	1,280	1,242	1,099	985	956
1934	Critical	916	883	867	1,082	1,170	1,400	1,430	1,353	1,222	1,052	921	882
1935	Below Normal	862	911	975	1,207	1,362	1,633	2,649	3,133	3,174	2,592	2,083	1,705
1936	Below Normal	1,442	1,252	1,198	1,642	2,415	2,817	3,217	3,410	3,446	2,873	2,375	2,005
1937	Below Normal	1,677	1,453	1,258	1,270	1,440	1,791	2,176	2,520	2,254	1,742	1,422	1,325
1938	Wet	1,230	1,272	2,099	2,353	2,788	2,788	3,277	3,538	3,538	3,378	3,128	2,599
1939	Dry	2,438	2,347	2,197	2,256	2,340	2,500	2,451	2,337	2,147	1,530	1,242	1,168
1940	Above Normal	1,060	950	917	1,374	2,363	2,788	3,238	3,413	3,350	2,733	2,229	1,775
1941	Wet	1,550	1,410	1,872	2,437	2,788	2,918	3,334	3,538	3,538	3,136	2,987	2,426
1942	Wet	2,256	2,187	2,788	2,788	2,806	3,058	3,281	3,538	3,538	3,224	2,980	2,422
1943	Wet	2,211	2,180	2,423	2,788	2,890	2,937	3,350	3,527	3,538	2,953	2,513	1,945
1944	Dry	1,731	1,609	1,311	1,383	1,547	1,790	1,919	2,147	1,965	1,379	1,242	1,157
1945	Below Normal	1,043	1,043	1,156	1,253	1,853	2,146	2,390	2,652	2,621	2,060	1,584	1,243
1946	Below Normal	1,170	1,153	1,702	2,065	2,269	2,562	2,888	3,103	2,974	2,400	1,910	1,589
1947	Dry	1,326	1,283	1,302	1,327	1,602	1,931	2,088	1,990	1,816	1,260	1,170	1,076
1948	Below Normal	1,065	1,028	1,002	1,253	1,344	1,540	2,200	2,666	2,830	2,294	1,795	1,517
1949	Dry	1,265	1,172	1,115	1,129	1,210	1,456	1,736	1,917	1,700	1,231	1,165	1,045
1950	Below Normal	959	909	889	1,156	1,576	2,016	2,511	2,815	2,875	2,309	1,836	1,517
1951	Above Normal	1,463	1,923	2,739	2,846	2,925	3,105	3,362	3,538	3,409	2,795	2,300	1,850
1952	Wet	1,677	1,578	1,990	2,431	2,832	2,988	3,452	3,538	3,538	3,538	3,524	2,983
1953	Wet	2,764	2,672	2,823	2,809	3,059	3,059	3,284	3,538	3,538	3,023	2,679	2,125
1954	Above Normal	1,932	1,899	1,807	1,954	2,322	2,881	3,292	3,481	3,282	2,667	2,192	1,738
1955	Dry	1,516	1,412	1,437	1,534	1,621	1,746	1,818	1,997	1,898	1,517	1,241	1,174
1956	Wet	1,038	935	2,396	2,788	2,788	3,018	3,427	3,538	3,538	3,160	2,890	2,352
1957	Above Normal	2,203	2,115	1,852	1,934	2,336	2,801	2,978	3,272	3,290	2,705	2,221	1,796
1958	Wet	1,741	1,627	1,772	2,050	2,788	2,788	3,235	3,538	3,538	3,371	3,299	2,768
1959	Below Normal	2,544	2,442	2,219	2,519	2,818	3,054	3,137	3,191	2,938	2,285	1,776	1,502
1960	Dry	1,297	1,195	1,126	1,226	1,783	2,347	2,508	2,588	2,368	1,783	1,444	1,244
1961	Dry	1,112	1,048	1,059	1,145	1,404	1,663	1,785	1,874	1,753	1,294	1,229	1,121
1962	Below Normal	1,025	967	999	1,092	1,623	1,967	2,470	2,659	2,619	1,990	1,495	1,239
1963	Wet	1,859	1,869	2,159	2,474	3,057	2,927	3,180	3,538	3,538	2,936	2,488	1,929
1964	Dry	1,716	1,789	1,756	1,878	2,005	2,131	2,233	2,340	2,268	1,685	1,451	1,244
1965	Wet	1,105	1,021	2,541	2,788	2,997	3,096	3,354	3,538	3,538	3,013	2,829	2,282
1966	Below Normal	2,106	2,127	2,173	2,323	2,413	2,636	2,943	3,026	2,770	2,153	1,657	1,314
1967	Wet	1,178	1,203	1,466	2,097	2,538	2,847	3,236	3,538	3,538	3,538	3,480	2,925
1968	Below Normal	2,724	2,625	2,495	2,650	2,962	3,036	3,179	3,263	3,020	2,388	1,954	1,615
1969	Wet	1,523	1,482	1,641	2,788	2,788	3,027	3,470	3,538	3,538	3,231	3,069	2,548
1970	Wet	2,421	2,376	2,806	2,787	2,787	3,163	3,239	3,294	3,104	2,471	1,993	1,452
1971	Wet	1,248	1,353	1,670	1,972	2,238	2,943	3,384	3,538	3,538	3,033	2,676	2,131
1972	Below Normal	1,970	1,895	1,946	2,105	2,355	2,775	2,937	3,020	2,798	2,171	1,709	1,653
1973	Above Normal	1,536	1,611	1,818	2,425	2,788	2,951	3,294	3,538	3,282	2,664	2,326	1,883
1974	Wet	1,709	2,390	2,800	2,870	3,009	2,788	3,292	3,538	3,538	3,163	3,168	2,647
1975	Wet	2,437	2,383	2,380	2,416	2,778	2,833	3,277	3,538	3,538	3,059	2,990	2,452
1976	Critical	2,290	2,242	2,095	2,166	2,296	2,407	2,331	2,217	2,026	1,431	1,295	1,286
1977	Critical	1,193	1,072	950	895	878	861	756	732	682	626	626	634
1978	Above Normal	608	632	837	1,704	2,212	2,944	3,218	3,536	3,538	2,991	2,645	2,302
1979	Below Normal	2,061	1,923	1,631	1,810	2,125	2,494	2,720	3,006	2,707	2,144	1,773	1,480
1980	Above Normal	1,320	1,267	1,318	2,452	2,788	3,028	3,295	3,493	3,466	3,089	2,851	2,418
1981	Dry	2,167	2,016	1,986	2,120	2,360	2,634	2,800	2,787	2,489	1,862	1,580	1,363
1982	Wet	1,309	2,154	2,788	2,943	2,987	2,936	3,303	3,538	3,538	3,330	3,283	2,960
1983	Wet	3,000	2,981	2,930	2,854	2,788	2,788	3,208	3,538	3,538	3,538	3,538	3,351
1984	Wet	3,163	2,950	2,788	3,091	3,078	3,120	3,357	3,506	3,406	2,808	2,472	1,920
1985	Dry	1,754	1,874	1,956	2,008	2,198	2,432	2,684	2,593	2,321	1,749	1,537	1,257
1986	Wet	1,188	1,063	1,056	1,320	2,788	2,788	3,143	3,233	3,210	2,648	2,271	1,806
1987	Dry	1,604	1,499	1,253	1,234	1,353	1,676	1,699	1,552	1,248	992	840	774
1988	Critical	814	925	1,252	1,470	1,541	1,625	1,661	1,664	1,492	1,241	1,135	1,079
1989	Dry	1,077	1,188	1,243	1,253	1,388	2,579	2,965	2,862	2,593	1,989	1,480	1,245
1990	Critical	1,248	1,241	1,252	1,327	1,410	1,674	1,679	1,697	1,630	1,215	1,113	1,045
1991	Critical	1,013	986	960	920	934	1,279	1,478	1,611	1,490	1,210	1,109	1,087
1992	Critical	1,044	992	978	999	1,252	1,457	1,598	1,465	1,242	1,033	886	758
1993	Above Normal	756	788	952	1,492	2,002	2,964	3,456	3,538	3,538	2,989	2,540	2,058
1994	Critical	1,873	1,768	1,708	1,713	1,823	2,010	1,982	1,952	1,757	1,240	1,140	1,006
1995	Wet	933	920	1,032	2,260	2,786	2,788	3,208	3,538	3,538	3,538	3,465	3,182
1996	Wet	2,953	2,847	2,999	2,788	2,788	2,995	3,352	3,538	3,538	3,011	2,741	2,201
1997	Wet	2,028	2,016	2,788	2,788	2,952	3,123	3,305	3,346	3,163	2,570	2,338	1,786
1998	Wet	1,590	1,569	1,686	2,423	2,788	2,817	3,298	3,538	3,538	3,538	3,538	3,351
1999	Wet	3,154	3,008	3,107	2,788	2,788	2,817	3,203	3,531	3,538	2,986	2,793	2,252
2000	Above Normal	2,031	1,955	1,706	1,939	2,685	2,964	3,362	3,538	3,319	2,693	2,228	1,799
2001	Dry	1,634	1,518	1,265	1,302	1,400	1,609	1,676	1,642	1,407	1,222	1,113	1,022
2002	Dry	952	981	1,201	1,498	1,692	2,000	2,162	2,221	2,092	1,511	1,410	1,244
2003	Above Normal	1,123	1,068	1,456	1,990	2,289	2,647	3,023	3,505	3,538	2,897	2,452	1,975
	Average:	1,586	1,561	1,678	1,894	2,168	2,416	2,696	2,839	2,741	2,295	2,023	1,709
	Minimum:	608	632	827	895	878	861	756	732	682	626	626	634
	Maximum:	3,163	3,008	3,107	3,091	3,078	3,163	3,470	3,538	3,538	3,538	3,538	3,351
	Wet:	1,862	1,876	2,233	2,516	2,818	2,936	3,302	3,508	3,489	3,122	2,909	2,411
	Above Normal:	1,495	1,501	1,589	2,002	2,422	2,895	3,264	3,479	3,386	2,817	2,397	1,949
	Below Normal:	1,628	1,556	1,551	1,760	2,068	2,361	2,741	2,968	2,863	2,279	1,814	1,530
	Dry:	1,409	1,372	1,356	1,456	1,677	2,001	2,199	2,249	2,054	1,562	1,347	1,184
	Critical:	1,296	1,224	1,196	1,256	1,356	1,498	1,509	1,483	1,362	1,100	989	942

Oroville Reservoir Storage (TAF)
Modified FMS

Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	2,293	2,191	2,139	2,240	2,577	2,875	3,417	3,538	3,538	3,107	2,824	2,331
1923	Below Normal	2,151	2,052	2,072	2,292	2,400	2,591	2,950	3,088	3,063	2,507	2,023	1,731
1924	Critical	1,516	1,322	1,226	1,245	1,385	1,431	1,388	1,309	1,208	1,050	934	897
1925	Dry	904	949	1,014	1,151	1,726	1,994	2,293	2,436	2,257	1,911	1,626	1,371
1926	Dry	1,248	1,201	1,130	1,243	1,703	1,972	2,598	2,524	2,209	1,758	1,453	1,244
1927	Wet	1,155	1,336	1,252	1,513	2,606	2,999	3,396	3,538	3,538	2,977	2,498	1,886
1928	Above Normal	1,610	1,614	1,532	1,671	1,782	2,797	3,234	3,363	3,085	2,460	1,947	1,451
1929	Critical	1,248	1,087	1,010	1,022	1,136	1,251	1,246	1,244	1,147	976	844	816
1930	Dry	787	774	1,252	1,519	1,677	2,139	2,483	2,633	2,409	1,831	1,541	1,244
1931	Critical	1,166	1,078	1,020	1,123	1,248	1,402	1,329	1,280	1,215	1,034	899	868
1932	Dry	854	869	820	1,023	1,206	1,445	1,715	2,055	2,049	1,616	1,468	1,334
1933	Critical	1,248	1,112	1,063	1,135	1,222	1,191	1,245	1,280	1,248	1,099	986	957
1934	Critical	916	884	868	1,083	1,170	1,401	1,430	1,353	1,221	1,049	918	880
1935	Below Normal	859	909	972	1,204	1,360	1,631	2,646	3,131	3,171	2,588	2,078	1,693
1936	Below Normal	1,443	1,252	1,199	1,643	2,416	2,818	3,218	3,411	3,447	2,874	2,374	2,017
1937	Below Normal	1,690	1,465	1,280	1,292	1,463	1,814	2,199	2,542	2,278	1,762	1,414	1,316
1938	Wet	1,222	1,264	2,090	2,344	2,788	2,788	3,277	3,538	3,538	3,378	3,128	2,599
1939	Dry	2,438	2,347	2,197	2,256	2,340	2,500	2,451	2,337	2,147	1,531	1,242	1,171
1940	Above Normal	1,063	953	920	1,377	2,365	2,788	3,238	3,413	3,350	2,733	2,229	1,775
1941	Wet	1,550	1,411	1,873	2,437	2,788	2,918	3,334	3,538	3,538	3,136	2,987	2,426
1942	Wet	2,256	2,187	2,788	2,788	2,806	3,058	3,281	3,538	3,538	3,224	2,980	2,422
1943	Wet	2,211	2,180	2,423	2,788	2,890	2,937	3,350	3,527	3,538	2,953	2,513	1,945
1944	Dry	1,731	1,609	1,312	1,384	1,548	1,790	1,919	2,147	1,963	1,377	1,242	1,157
1945	Below Normal	1,043	1,043	1,156	1,253	1,853	2,146	2,390	2,652	2,627	2,066	1,589	1,243
1946	Below Normal	1,170	1,154	1,703	2,065	2,270	2,562	2,888	3,103	2,967	2,394	1,903	1,592
1947	Dry	1,331	1,287	1,306	1,331	1,606	1,935	2,092	1,992	1,819	1,263	1,173	1,078
1948	Below Normal	1,067	1,031	1,005	1,253	1,347	1,543	2,202	2,669	2,832	2,296	1,796	1,523
1949	Dry	1,273	1,180	1,123	1,137	1,218	1,465	1,744	1,925	1,708	1,238	1,172	1,044
1950	Below Normal	958	908	888	1,156	1,576	2,015	2,510	2,814	2,875	2,311	1,838	1,531
1951	Above Normal	1,477	1,937	2,753	2,846	2,925	3,105	3,362	3,538	3,394	2,780	2,286	1,835
1952	Wet	1,663	1,564	1,976	2,417	2,832	2,988	3,452	3,538	3,538	3,538	3,524	2,983
1953	Wet	2,764	2,672	2,823	2,809	3,059	3,059	3,284	3,538	3,538	3,023	2,679	2,125
1954	Above Normal	1,932	1,899	1,807	1,954	2,322	2,881	3,292	3,481	3,264	2,649	2,173	1,720
1955	Dry	1,497	1,394	1,418	1,515	1,602	1,727	1,799	1,979	1,876	1,525	1,241	1,172
1956	Wet	1,036	933	2,394	2,788	2,788	3,018	3,427	3,538	3,538	3,160	2,890	2,352
1957	Above Normal	2,203	2,115	1,852	1,934	2,336	2,801	2,978	3,272	3,293	2,708	2,224	1,799
1958	Wet	1,744	1,630	1,775	2,053	2,788	2,788	3,235	3,538	3,538	3,371	3,299	2,768
1959	Below Normal	2,544	2,442	2,219	2,519	2,818	3,054	3,137	3,202	2,949	2,301	1,792	1,527
1960	Dry	1,321	1,219	1,149	1,250	1,807	2,371	2,538	2,618	2,394	1,811	1,524	1,244
1961	Dry	1,151	1,088	1,099	1,185	1,444	1,704	1,825	1,914	1,792	1,240	1,158	1,049
1962	Below Normal	975	944	995	1,097	1,628	1,972	2,474	2,664	2,614	1,981	1,485	1,239
1963	Wet	1,859	1,869	2,159	2,474	3,057	2,927	3,180	3,538	3,538	2,936	2,488	1,928
1964	Dry	1,716	1,795	1,762	1,884	2,011	2,137	2,239	2,346	2,255	1,672	1,434	1,244
1965	Wet	1,105	1,021	2,542	2,788	2,997	3,096	3,354	3,538	3,538	3,012	2,829	2,282
1966	Below Normal	2,105	2,127	2,172	2,322	2,412	2,635	2,942	3,026	2,768	2,151	1,655	1,312
1967	Wet	1,176	1,201	1,464	2,095	2,536	2,847	3,236	3,538	3,538	3,538	3,480	2,925
1968	Below Normal	2,724	2,625	2,495	2,650	2,962	3,036	3,179	3,263	3,019	2,393	1,959	1,621
1969	Wet	1,529	1,489	1,648	2,788	2,788	3,027	3,470	3,538	3,538	3,231	3,069	2,548
1970	Wet	2,421	2,376	2,806	2,787	2,787	3,163	3,239	3,294	3,103	2,463	2,002	1,460
1971	Wet	1,251	1,362	1,679	1,981	2,247	2,952	3,392	3,538	3,538	3,033	2,676	2,131
1972	Below Normal	1,970	1,895	1,946	2,105	2,355	2,775	2,937	3,019	2,794	2,170	1,708	1,653
1973	Above Normal	1,536	1,611	1,818	2,425	2,788	2,951	3,294	3,538	3,282	2,664	2,326	1,883
1974	Wet	1,709	2,390	2,800	2,870	3,009	2,788	3,292	3,538	3,538	3,163	3,168	2,647
1975	Wet	2,437	2,383	2,380	2,416	2,778	2,833	3,277	3,538	3,538	3,059	2,990	2,452
1976	Critical	2,290	2,242	2,095	2,166	2,296	2,406	2,331	2,217	2,026	1,430	1,294	1,285
1977	Critical	1,192	1,071	949	894	877	860	756	732	682	626	626	634
1978	Above Normal	608	632	837	1,704	2,212	2,944	3,218	3,536	3,538	2,991	2,645	2,302
1979	Below Normal	2,061	1,923	1,632	1,810	2,125	2,494	2,720	3,006	2,707	2,144	1,774	1,475
1980	Above Normal	1,315	1,262	1,313	2,447	2,788	3,028	3,295	3,493	3,466	3,089	2,851	2,418
1981	Dry	2,167	2,016	1,987	2,121	2,361	2,634	2,800	2,787	2,490	1,863	1,594	1,392
1982	Wet	1,326	2,171	2,788	2,943	2,987	2,936	3,303	3,538	3,538	3,330	3,283	2,960
1983	Wet	3,000	2,981	2,930	2,854	2,788	2,788	3,208	3,538	3,538	3,538	3,538	3,351
1984	Wet	3,163	2,950	2,788	3,091	3,078	3,120	3,357	3,506	3,413	2,816	2,479	1,927
1985	Dry	1,761	1,882	1,963	2,015	2,205	2,440	2,691	2,601	2,321	1,749	1,532	1,257
1986	Wet	1,188	1,063	1,056	1,321	2,788	2,788	3,143	3,233	3,210	2,652	2,276	1,811
1987	Dry	1,609	1,504	1,253	1,234	1,353	1,676	1,699	1,552	1,248	988	836	770
1988	Critical	810	921	1,252	1,466	1,537	1,621	1,657	1,646	1,474	1,241	1,135	1,082
1989	Dry	1,080	1,191	1,246	1,253	1,391	2,582	2,968	2,869	2,596	1,998	1,483	1,245
1990	Critical	1,248	1,241	1,252	1,327	1,410	1,674	1,679	1,697	1,630	1,214	1,113	1,045
1991	Critical	1,013	986	960	921	935	1,280	1,480	1,613	1,478	1,209	1,109	1,087
1992	Critical	1,044	992	977	999	1,252	1,457	1,598	1,465	1,242	1,032	884	756
1993	Above Normal	756	788	952	1,492	2,002	2,964	3,456	3,538	3,538	2,990	2,542	2,062
1994	Critical	1,878	1,772	1,712	1,718	1,827	2,014	1,986	1,957	1,761	1,240	1,138	1,003
1995	Wet	931	918	1,029	2,257	2,783	2,788	3,208	3,538	3,538	3,538	3,465	3,181
1996	Wet	2,952	2,846	2,999	2,788	2,788	2,995	3,352	3,538	3,538	3,011	2,741	2,201
1997	Wet	2,028	2,016	2,788	2,788	2,952	3,123	3,305	3,346	3,144	2,557	2,325	1,774
1998	Wet	1,578	1,556	1,673	2,411	2,788	2,817	3,298	3,538	3,538	3,538	3,538	3,351
1999	Wet	3,154	3,008	3,107	2,788	2,788	2,817	3,203	3,531	3,538	2,986	2,793	2,252
2000	Above Normal	2,031	1,955	1,706	1,939	2,685	2,964	3,362	3,538	3,319	2,693	2,228	1,799
2001	Dry	1,634	1,518	1,265	1,302	1,400	1,609	1,676	1,642	1,407	1,222	1,113	1,022
2002	Dry	952	981	1,201	1,498	1,692	2,000	2,162	2,221	2,065	1,485	1,385	1,244
2003	Above Normal	1,123	1,069	1,456	1,990	2,289	2,648	3,023	3,505	3,538	2,897	2,451	1,975
	Average:	1,587	1,562	1,680	1,896	2,170	2,418	2,698	2,840	2,741	2,294	2,023	1,709
	Minimum:	608	632	820	894	877	860	756	732	682	626	626	634
	Maximum:	3,163	3,008	3,107	3,091	3,078	3,163	3,470	3,538	3,538	3,538	3,538	3,351
	Wet:	1,862	1,876	2,232	2,515	2,819	2,937	3,302	3,508	3,489	3,122	2,909	2,411
	Above Normal:	1,496	1,502	1,590	2,002	2,423	2,895	3,264	3,479	3,384	2,813	2,394	1,946
	Below Normal:	1,626	1,555	1,552	1,762	2,070	2,363	2,743	2,971	2,865	2,281	1,813	1,534
	Dry:	1,414	1,378	1,361	1,461	1,683	2,007	2,205	2,254	2,056	1,560	1,345	1,182
	Critical:	1,297	1,226	1,199	1,258	1,358	1,499	1,511	1,482	1,361	1,100	990	942

Oroville Reservoir Storage (TAF)
Difference Between Modified FMS and 2006 FMS

Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	0	0	0	0	0	0	0	0	0	0	0	0
1923	Below Normal	0	0	0	0	0	0	0	0	0	0	0	13
1924	Critical	13	13	13	13	13	13	13	13	12	12	13	13
1925	Dry	13	13	13	13	13	13	13	13	14	0	2	12
1926	Dry	0	11	10	10	10	10	10	6	6	-2	-14	0
1927	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1928	Above Normal	0	0	0	0	0	0	0	0	-1	-10	-10	-12
1929	Critical	0	9	9	9	9	0	1	0	8	8	7	7
1930	Dry	7	7	0	7	7	7	7	7	8	8	0	0
1931	Critical	0	0	0	0	0	0	0	0	-8	-8	-7	-7
1932	Dry	-7	-7	-7	-7	-7	-7	-7	-7	-7	0	-5	3
1933	Critical	0	0	0	0	0	0	0	0	6	1	1	1
1934	Critical	1	1	1	1	1	1	0	-1	-1	-2	-2	-2
1935	Below Normal	-2	-2	-2	-2	-2	-2	-2	-2	-3	-4	-5	-12
1936	Below Normal	1	0	1	1	1	1	1	1	1	0	-1	12
1937	Below Normal	12	12	22	22	22	22	22	22	24	20	-8	-9
1938	Wet	-9	-9	-9	-9	0	0	0	0	0	0	0	0
1939	Dry	0	0	0	0	0	0	0	0	0	0	0	3
1940	Above Normal	3	3	3	3	3	0	0	0	0	0	0	1
1941	Wet	1	1	1	1	0	0	0	0	0	0	0	0
1942	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1943	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1944	Dry	0	0	1	1	1	1	1	1	-2	-2	0	0
1945	Below Normal	0	0	0	0	0	0	0	0	6	6	5	0
1946	Below Normal	1	1	1	1	1	1	1	1	-7	-7	-7	4
1947	Dry	4	4	4	4	4	4	4	3	3	3	3	3
1948	Below Normal	2	2	3	0	3	3	3	3	3	2	1	6
1949	Dry	8	8	8	8	8	8	8	8	8	6	6	0
1950	Below Normal	0	0	0	0	0	0	0	0	0	1	2	14
1951	Above Normal	14	14	14	0	0	0	0	0	-15	-15	-15	-14
1952	Wet	-14	-14	-14	-15	0	0	0	0	0	0	0	0
1953	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1954	Above Normal	0	0	0	0	0	0	0	0	-19	-18	-18	-18
1955	Dry	-18	-18	-18	-18	-18	-19	-18	-18	-22	7	0	-2
1956	Wet	-2	-2	-2	0	0	0	0	0	0	0	0	0
1957	Above Normal	0	0	0	0	0	0	0	0	3	3	3	3
1958	Wet	3	3	3	3	0	0	0	0	0	0	0	0
1959	Below Normal	0	0	0	0	0	0	0	11	11	16	16	25
1960	Dry	24	24	23	23	24	23	30	30	26	28	80	0
1961	Dry	40	40	40	40	40	40	40	40	39	-54	-71	-72
1962	Below Normal	-50	-23	-5	5	5	5	5	5	-5	-9	-9	0
1963	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1964	Dry	0	6	6	6	6	6	6	6	-13	-13	-18	0
1965	Wet	0	0	0	0	0	0	0	0	0	0	0	-1
1966	Below Normal	-1	-1	-1	-1	-1	-1	-1	-1	-2	-2	-2	-2
1967	Wet	-2	-2	-2	-2	-2	0	0	0	0	0	0	0
1968	Below Normal	0	0	0	0	0	0	0	0	-2	5	5	6
1969	Wet	6	6	6	0	0	0	0	0	0	0	0	0
1970	Wet	0	0	0	0	0	0	0	0	-1	-8	9	9
1971	Wet	3	9	9	9	9	9	9	0	0	0	0	0
1972	Below Normal	0	0	0	0	0	0	0	0	-4	-1	0	0
1973	Above Normal	0	0	0	0	0	0	0	0	0	0	0	0
1974	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1975	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1976	Critical	0	0	0	0	0	0	0	0	0	-1	-1	-1
1977	Critical	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0
1978	Above Normal	0	0	0	0	0	0	0	0	0	0	0	0
1979	Below Normal	0	0	0	0	0	0	0	0	0	1	0	-5
1980	Above Normal	-5	-5	-5	-5	0	0	0	0	0	0	0	0
1981	Dry	0	0	1	1	1	1	1	1	1	1	14	29
1982	Wet	17	17	0	0	0	0	0	0	0	0	0	0
1983	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1984	Wet	0	0	0	0	0	0	0	0	7	7	7	7
1985	Dry	7	7	7	7	7	7	7	7	0	0	-5	0
1986	Wet	0	0	0	0	0	0	0	0	0	5	5	5
1987	Dry	5	5	0	0	0	0	0	0	0	-4	-4	-4
1988	Critical	-4	-4	0	-4	-4	-4	-4	-18	-18	0	1	3
1989	Dry	3	3	3	0	3	3	3	6	3	9	2	0
1990	Critical	1	1	0	0	0	0	0	0	0	-1	0	0
1991	Critical	0	0	0	1	1	1	1	1	-12	0	0	0
1992	Critical	0	0	0	0	0	0	0	0	0	-1	-2	-2
1993	Above Normal	0	0	0	0	0	0	0	0	0	1	2	4
1994	Critical	4	4	4	4	4	4	4	4	4	0	-2	-2
1995	Wet	-2	-2	-2	-2	-2	0	0	0	0	0	0	-1
1996	Wet	-1	-1	-1	0	0	0	0	0	0	0	0	0
1997	Wet	0	0	0	0	0	0	0	0	-19	-13	-12	-12
1998	Wet	-12	-12	-12	-12	0	0	0	0	0	0	0	0
1999	Wet	0	0	0	0	0	0	0	0	0	0	0	0
2000	Above Normal	0	0	0	0	0	0	0	0	0	0	0	0
2001	Dry	0	0	0	0	0	0	0	0	0	0	0	0
2002	Dry	0	0	0	0	0	0	0	0	-27	-26	-25	0
2003	Above Normal	0	0	0	0	0	0	0	0	0	0	-1	-1
	Average:	1	1	2	1	2	2	2	2	0	-1	-1	0
	Minimum:	-50	-23	-18	-18	-18	-19	-18	-18	-27	-54	-71	-72
	Maximum:	40	40	40	40	40	40	40	40	39	28	80	29
	Wet:	-1	0	-1	-1	0	0	0	0	0	0	0	0
	Above Normal:	1	1	1	0	0	0	0	0	-3	-3	-3	-3
	Below Normal:	-3	-1	1	2	2	2	2	3	2	2	0	4
	Dry:	5	6	5	5	5	5	6	6	2	-2	-2	-1
	Critical:	1	2	2	2	2	1	1	0	-1	1	1	1

Folsom Reservoir Storage (TAF)
2006 FMS

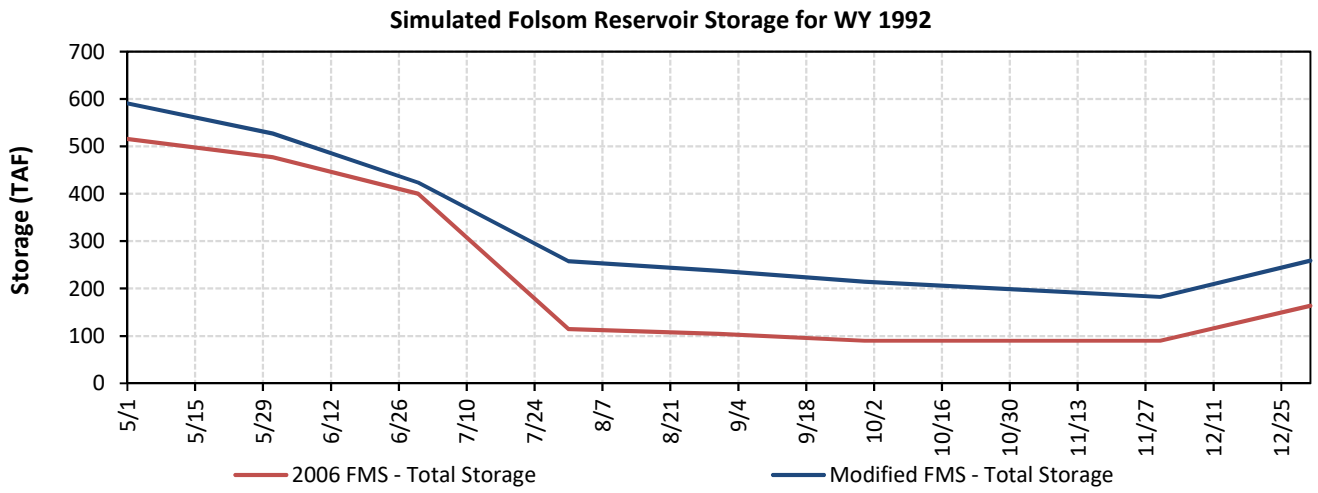
Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	489	422	409	400	567	662	792	967	967	942	792	559
1923	Below Normal	513	475	567	567	525	620	792	967	967	758	714	687
1924	Critical	528	451	372	300	300	305	346	364	360	343	323	303
1925	Dry	309	325	381	440	567	656	792	967	928	687	637	602
1926	Dry	547	476	421	370	513	609	792	786	648	498	411	383
1927	Wet	337	410	453	565	553	647	792	967	967	791	741	632
1928	Above Normal	582	452	431	420	461	635	792	913	816	541	466	417
1929	Critical	352	297	243	201	213	267	340	432	426	383	327	295
1930	Dry	268	239	356	453	560	659	792	812	706	541	458	423
1931	Critical	357	301	230	201	200	247	280	298	300	268	232	204
1932	Dry	196	191	264	343	567	664	792	967	967	897	792	688
1933	Critical	553	422	345	281	241	261	325	406	436	377	315	275
1934	Critical	265	251	300	389	474	600	599	509	341	302	258	230
1935	Below Normal	216	223	231	320	420	493	792	967	967	735	691	657
1936	Below Normal	569	507	437	567	562	651	792	967	967	753	710	679
1937	Below Normal	512	433	363	309	539	664	792	967	967	721	674	615
1938	Wet	565	528	567	567	567	662	792	967	967	942	792	719
1939	Dry	592	512	454	395	370	480	599	590	517	378	336	326
1940	Above Normal	310	278	253	567	557	626	792	967	967	712	658	464
1941	Wet	398	363	502	567	566	658	792	967	967	941	792	580
1942	Wet	531	476	567	564	556	650	792	967	967	942	792	589
1943	Wet	536	452	567	556	529	625	792	967	967	780	733	515
1944	Dry	457	379	304	253	292	400	464	597	561	462	403	366
1945	Below Normal	315	337	381	378	558	656	792	967	967	749	680	620
1946	Below Normal	576	567	567	564	558	649	792	967	960	707	636	606
1947	Dry	506	487	470	410	477	629	724	740	646	484	410	383
1948	Below Normal	361	316	265	350	364	386	701	967	967	868	792	752
1949	Dry	684	567	516	453	456	636	792	954	894	673	548	511
1950	Below Normal	451	379	304	471	565	658	792	967	967	737	691	657
1951	Above Normal	592	449	367	384	407	599	792	967	934	661	596	489
1952	Wet	455	439	567	567	566	661	792	967	967	942	792	627
1953	Wet	588	491	491	566	560	630	792	967	967	898	792	686
1954	Above Normal	580	505	457	463	560	656	792	871	812	535	479	447
1955	Dry	389	342	353	394	413	451	538	689	682	562	507	473
1956	Wet	418	356	524	460	458	616	792	967	967	940	792	728
1957	Above Normal	592	463	412	363	539	652	740	967	967	712	632	587
1958	Wet	546	493	490	535	557	656	792	967	967	942	792	634
1959	Below Normal	576	485	420	445	543	628	724	749	718	422	376	380
1960	Dry	327	265	209	201	431	654	718	745	700	606	527	489
1961	Dry	424	363	302	234	242	290	353	402	382	183	165	172
1962	Below Normal	161	154	168	189	506	611	792	914	930	666	556	519
1963	Wet	712	567	567	544	499	629	792	967	967	774	719	662
1964	Dry	592	546	526	567	567	566	651	740	735	548	470	437
1965	Wet	358	326	428	425	443	612	792	965	967	847	792	581
1966	Below Normal	507	478	453	462	472	558	717	745	682	450	398	379
1967	Wet	336	336	506	563	552	636	792	967	967	942	792	618
1968	Below Normal	594	512	478	487	547	640	716	730	676	423	376	352
1969	Wet	310	307	369	543	527	637	792	967	967	942	792	592
1970	Wet	567	516	567	453	446	611	699	792	771	514	466	386
1971	Wet	339	384	567	567	558	648	792	965	967	879	792	622
1972	Below Normal	575	504	520	521	567	646	759	863	827	585	534	509
1973	Above Normal	469	454	552	559	555	652	792	967	923	697	642	583
1974	Wet	550	567	567	505	499	622	792	967	967	942	792	639
1975	Wet	573	478	419	403	542	662	792	967	967	924	792	743
1976	Critical	712	526	505	447	396	414	426	440	414	372	338	301
1977	Critical	273	249	224	205	197	192	187	191	188	165	147	124
1978	Above Normal	100	91	186	567	567	657	792	967	967	789	736	633
1979	Below Normal	586	496	426	471	567	657	792	967	871	653	596	567
1980	Above Normal	545	513	510	481	457	621	792	967	967	939	792	592
1981	Dry	552	463	393	360	347	459	546	581	553	384	342	300
1982	Wet	293	546	433	459	402	590	792	967	967	942	792	752
1983	Wet	712	565	565	556	543	628	792	967	967	942	792	752
1984	Wet	712	472	406	427	458	615	754	960	967	718	663	596
1985	Dry	543	567	567	529	527	567	725	761	632	505	412	392
1986	Wet	332	302	335	528	440	593	792	967	967	712	660	511
1987	Dry	485	410	333	278	288	390	448	459	415	314	286	258
1988	Critical	228	202	226	307	317	347	379	388	377	355	325	298
1989	Dry	266	291	309	331	362	642	792	807	669	513	424	405
1990	Critical	374	347	307	316	317	415	483	501	483	433	387	347
1991	Critical	300	256	212	201	199	403	538	672	664	499	327	276
1992	Critical	259	253	245	232	352	452	517	477	400	114	104	90
1993	Above Normal	90	90	164	551	553	637	792	967	967	850	768	630
1994	Critical	587	473	421	360	349	409	441	466	438	355	315	283
1995	Wet	252	255	341	546	530	618	792	967	967	942	792	752
1996	Wet	592	470	546	557	494	621	792	967	967	848	792	597
1997	Wet	507	429	512	370	394	591	752	901	914	649	585	379
1998	Wet	350	310	283	567	555	646	792	967	967	942	792	752
1999	Wet	712	567	567	560	560	654	792	967	967	827	788	592
2000	Above Normal	552	447	392	545	558	656	792	967	955	692	629	580
2001	Dry	537	444	381	326	335	425	513	558	493	422	375	366
2002	Dry	342	340	442	567	563	655	792	904	877	639	546	516
2003	Above Normal	455	413	501	562	551	647	792	967	967	709	656	581
	Average:	454	403	409	437	468	570	699	820	797	655	577	504
	Minimum:	90	90	164	189	197	192	187	191	188	114	104	90
	Maximum:	712	567	567	567	567	664	792	967	967	942	792	752
	Wet:	484	439	489	520	514	631	785	957	957	862	754	624
	Above Normal:	446	381	386	489	528	642	788	955	934	731	654	547
	Below Normal:	465	419	399	436	521	608	768	907	888	659	602	570
	Dry:	445	400	388	383	438	546	657	726	667	517	447	416
	Critical:	399	336	303	287	296	359	405	429	402	330	283	252

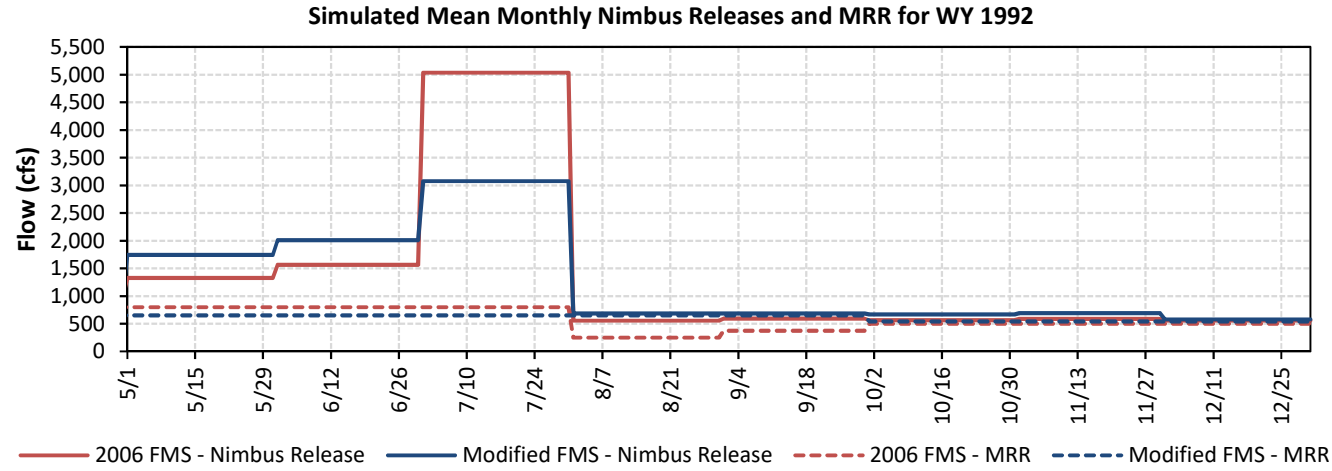
Folsom Reservoir Storage (TAF)
Modified FMS

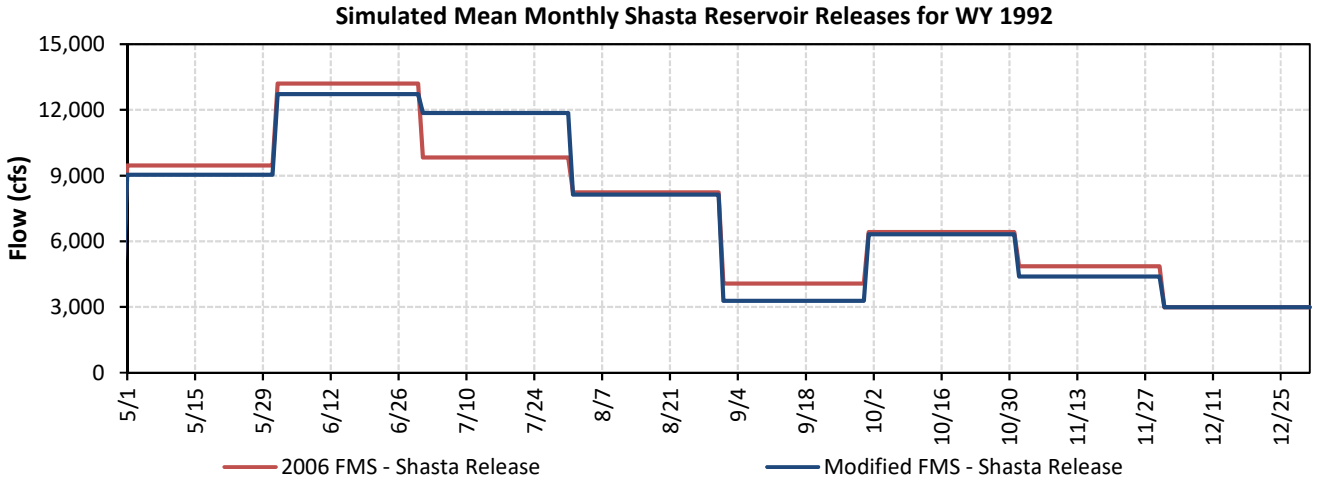
Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	489	417	405	414	567	662	792	967	967	942	792	559
1923	Below Normal	513	475	567	567	525	620	792	967	967	758	714	674
1924	Critical	528	447	368	313	314	286	292	276	269	249	225	207
1925	Dry	213	229	285	331	567	656	792	967	926	686	635	587
1926	Dry	532	457	402	369	514	582	792	784	658	507	421	375
1927	Wet	374	493	567	565	553	647	792	967	967	791	741	632
1928	Above Normal	583	451	429	428	469	635	792	929	819	633	569	522
1929	Critical	457	380	313	264	258	318	401	473	457	416	362	329
1930	Dry	319	308	446	561	567	659	792	854	748	554	478	436
1931	Critical	380	361	330	329	338	395	441	469	481	322	298	278
1932	Dry	269	264	353	452	567	664	792	967	967	896	792	688
1933	Critical	556	425	349	301	266	293	386	496	497	409	347	304
1934	Critical	302	298	355	450	528	651	650	560	426	354	283	229
1935	Below Normal	227	244	261	360	407	481	792	967	967	735	691	644
1936	Below Normal	550	483	414	567	562	651	792	967	967	752	709	665
1937	Below Normal	513	430	360	324	536	664	792	967	967	721	674	615
1938	Wet	565	523	567	567	567	662	792	967	967	942	792	719
1939	Dry	592	516	459	418	395	496	606	596	524	385	333	313
1940	Above Normal	322	311	313	567	557	626	792	967	967	712	658	528
1941	Wet	473	418	552	567	566	658	792	967	967	941	792	580
1942	Wet	531	476	567	564	556	650	792	967	967	942	792	589
1943	Wet	536	470	567	556	529	625	792	967	967	780	733	527
1944	Dry	469	386	311	278	317	420	513	675	602	487	424	384
1945	Below Normal	377	441	529	567	558	656	792	967	967	746	676	622
1946	Below Normal	572	567	567	564	558	649	792	967	967	714	643	601
1947	Dry	504	481	464	422	492	629	743	779	653	490	414	370
1948	Below Normal	394	394	388	507	456	478	792	967	967	870	792	743
1949	Dry	680	567	516	472	463	649	792	961	900	674	549	500
1950	Below Normal	446	406	367	567	565	658	792	967	967	737	691	644
1951	Above Normal	592	449	367	384	407	599	792	967	949	676	610	525
1952	Wet	490	445	567	567	566	661	792	967	967	942	792	627
1953	Wet	588	491	491	566	560	630	792	967	967	898	792	686
1954	Above Normal	580	505	457	482	567	656	792	894	857	582	525	480
1955	Dry	423	378	401	452	468	480	585	754	728	582	535	496
1956	Wet	460	439	524	460	458	616	792	967	967	940	792	728
1957	Above Normal	592	463	412	382	540	652	757	967	967	712	632	586
1958	Wet	545	496	501	565	557	656	792	967	967	942	792	634
1959	Below Normal	576	485	420	463	564	622	710	727	694	439	351	316
1960	Dry	307	290	279	300	495	654	720	769	745	615	521	470
1961	Dry	430	413	402	364	403	461	537	598	578	423	375	356
1962	Below Normal	348	341	355	361	567	664	792	934	967	701	588	522
1963	Wet	712	567	567	544	499	629	792	967	967	774	719	662
1964	Dry	592	546	526	567	567	565	692	824	859	593	512	473
1965	Wet	383	391	428	425	443	612	792	965	967	847	792	581
1966	Below Normal	508	474	450	470	498	571	740	779	736	499	428	390
1967	Wet	392	442	567	563	552	636	792	967	967	942	792	618
1968	Below Normal	594	512	477	505	547	640	734	767	731	498	434	394
1969	Wet	372	391	479	543	527	637	792	967	967	942	792	592
1970	Wet	567	513	567	453	446	611	714	822	797	606	556	518
1971	Wet	468	486	567	567	558	648	792	965	967	879	792	621
1972	Below Normal	574	503	518	538	567	646	786	917	836	603	554	517
1973	Above Normal	481	495	567	559	555	652	792	967	923	697	642	583
1974	Wet	550	567	567	505	499	622	792	967	967	942	792	639
1975	Wet	573	478	419	422	544	662	792	967	967	924	792	743
1976	Critical	712	526	505	466	417	426	428	433	424	392	376	353
1977	Critical	331	315	300	300	288	272	259	254	245	217	193	170
1978	Above Normal	143	136	231	567	567	657	792	967	967	789	736	633
1979	Below Normal	585	496	426	489	567	657	792	967	871	653	596	555
1980	Above Normal	532	513	527	481	457	621	792	967	967	939	792	592
1981	Dry	552	466	396	366	373	455	531	555	530	416	358	300
1982	Wet	307	546	433	459	402	590	792	967	967	942	792	752
1983	Wet	712	565	565	556	543	628	792	967	967	942	792	752
1984	Wet	712	472	406	427	458	615	768	967	967	718	663	596
1985	Dry	543	567	567	529	546	586	774	839	690	542	432	406
1986	Wet	378	390	471	551	440	593	792	967	967	712	661	525
1987	Dry	499	420	343	304	317	412	460	462	418	321	301	281
1988	Critical	260	249	288	386	408	451	496	495	449	404	380	358
1989	Dry	334	370	404	443	421	642	792	895	738	616	550	518
1990	Critical	486	438	383	398	390	505	588	620	588	493	431	388
1991	Critical	368	354	341	330	295	458	563	667	674	496	350	300
1992	Critical	292	294	294	289	418	527	593	527	424	258	238	214
1993	Above Normal	198	182	259	567	553	637	792	967	967	851	770	633
1994	Critical	590	474	421	378	371	421	444	460	433	356	334	314
1995	Wet	295	308	410	546	530	618	792	967	967	942	792	752
1996	Wet	592	470	546	557	494	621	792	967	967	848	792	597
1997	Wet	507	466	512	370	394	591	767	931	959	694	629	523
1998	Wet	490	401	358	567	555	646	792	967	967	942	792	752
1999	Wet	712	567	567	560	560	654	792	967	967	827	788	592
2000	Above Normal	552	447	392	561	558	656	792	967	955	692	629	578
2001	Dry	537	444	381	345	356	445	532	577	507	430	387	381
2002	Dry	373	388	510	567	563	655	792	926	920	652	558	515
2003	Above Normal	454	426	533	562	551	647	792	967	967	709	656	580
	Average:	476	431	439	465	486	584	715	839	815	672	594	519
	Minimum:	143	136	231	264	258	272	259	254	245	217	193	170
	Maximum:	712	567	567	567	567	664	792	967	967	942	792	752
	Wet:	511	472	513	523	514	631	787	960	960	867	759	636
	Above Normal:	460	400	408	496	529	642	789	958	939	744	668	567
	Below Normal:	484	446	436	489	534	618	778	916	898	673	610	564
	Dry:	454	416	414	419	466	562	680	766	705	548	476	436
	Critical:	439	380	354	350	358	417	462	478	447	364	318	287

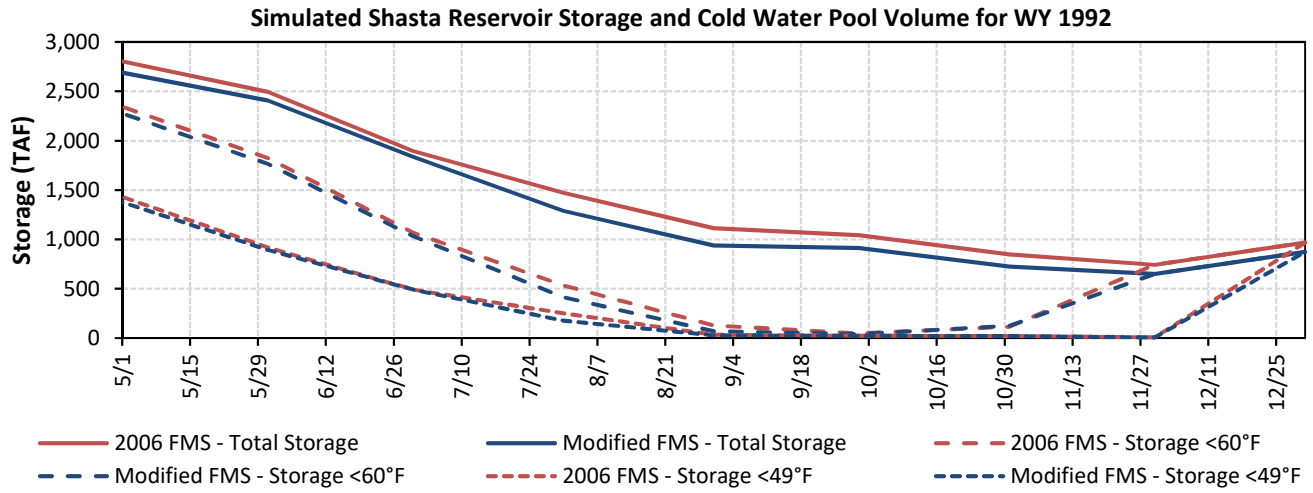
Folsom Reservoir Storage (TAF)
Difference Between Modified FMS and 2006 FMS

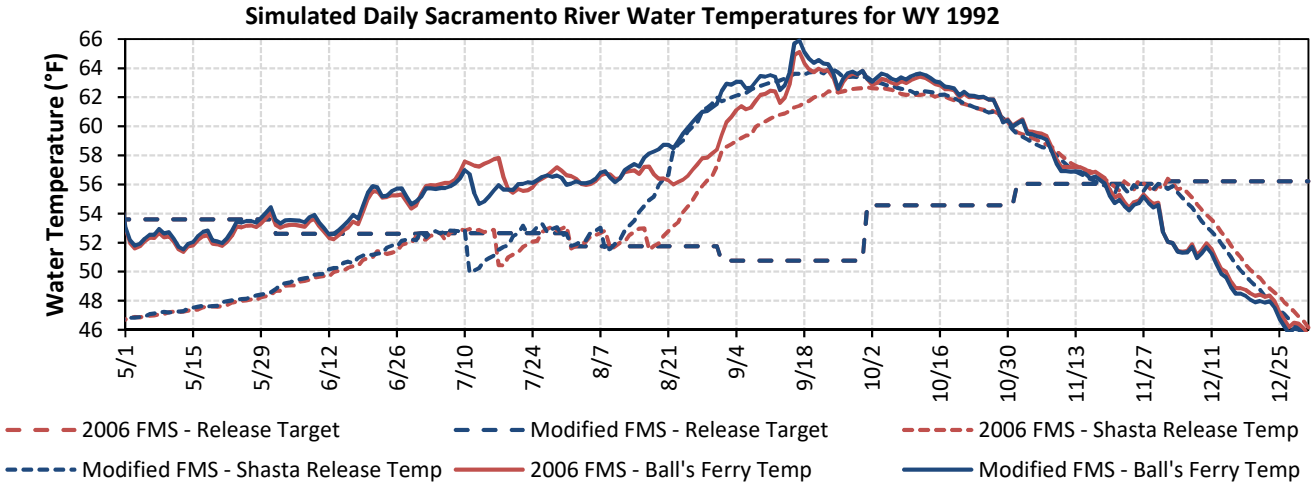
Water Year	Year Type	October	November	December	January	February	March	April	May	June	July	August	September
1922	Above Normal	0	-4	-4	14	0	0	0	0	0	0	0	0
1923	Below Normal	0	0	0	0	0	0	0	0	0	0	0	-13
1924	Critical	0	-4	-4	13	14	-19	-54	-87	-91	-94	-98	-97
1925	Dry	-96	-96	-96	-109	0	0	0	0	-1	-2	-2	-15
1926	Dry	-15	-19	-19	-1	1	-27	0	-2	10	8	9	-9
1927	Wet	37	83	114	0	0	0	0	0	0	0	0	0
1928	Above Normal	0	-2	-2	8	8	0	0	15	3	93	103	105
1929	Critical	104	83	70	63	46	52	62	41	31	33	35	34
1930	Dry	51	69	89	108	7	0	0	41	41	13	20	13
1931	Critical	23	60	100	129	137	148	161	171	181	54	67	73
1932	Dry	73	73	89	110	0	0	0	0	0	-1	0	0
1933	Critical	3	3	3	19	24	32	61	91	61	32	32	29
1934	Critical	37	47	55	61	54	51	51	51	85	53	26	-1
1935	Below Normal	12	21	31	41	-12	-12	0	0	0	0	0	-13
1936	Below Normal	-19	-24	-24	0	0	0	0	0	0	-1	-1	-14
1937	Below Normal	1	-4	-4	15	-2	0	0	0	0	0	0	0
1938	Wet	0	-5	0	0	0	0	0	0	0	0	0	0
1939	Dry	0	4	4	23	25	16	7	6	7	6	-4	-13
1940	Above Normal	12	33	60	0	0	0	0	0	0	0	0	64
1941	Wet	74	55	50	0	0	0	0	0	0	0	0	0
1942	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1943	Wet	0	18	0	0	0	0	0	0	0	0	0	12
1944	Dry	12	7	7	26	26	19	48	78	41	26	21	18
1945	Below Normal	61	104	148	189	0	0	0	0	0	-4	-4	2
1946	Below Normal	-4	0	0	0	0	0	0	0	7	7	7	-6
1947	Dry	-2	-6	-6	12	15	0	20	40	7	6	5	-12
1948	Below Normal	33	78	123	157	92	92	91	0	0	2	0	-9
1949	Dry	-4	0	0	18	7	13	0	7	7	2	1	-10
1950	Below Normal	-4	27	63	96	0	0	0	0	0	0	0	-13
1951	Above Normal	0	0	0	0	0	0	0	0	15	15	14	36
1952	Wet	36	6	0	0	0	0	0	0	0	0	0	0
1953	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1954	Above Normal	0	0	0	18	7	0	0	23	45	47	46	33
1955	Dry	33	36	48	58	55	30	47	65	46	20	28	22
1956	Wet	42	83	0	0	0	0	0	0	0	0	0	0
1957	Above Normal	0	0	0	18	2	0	17	0	0	0	0	0
1958	Wet	0	3	10	30	0	0	0	0	0	0	0	0
1959	Below Normal	0	0	0	18	21	-6	-14	-22	-24	18	-25	-63
1960	Dry	-19	25	71	99	65	0	2	24	45	9	-6	-19
1961	Dry	5	50	100	131	161	171	185	196	195	241	210	184
1962	Below Normal	188	187	186	172	61	53	0	20	37	35	33	2
1963	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1964	Dry	0	0	0	0	0	-1	41	83	124	44	42	35
1965	Wet	25	64	0	0	0	0	0	0	0	0	0	0
1966	Below Normal	1	-3	-3	7	27	13	23	34	54	49	30	12
1967	Wet	55	106	61	0	0	0	0	0	0	0	0	0
1968	Below Normal	0	0	0	18	0	0	18	37	55	75	58	42
1969	Wet	62	84	111	0	0	0	0	0	0	0	0	0
1970	Wet	0	-3	0	0	0	0	15	30	26	92	90	132
1971	Wet	129	102	0	0	0	0	0	0	0	0	0	-1
1972	Below Normal	-1	-1	-1	17	0	0	26	54	9	18	20	8
1973	Above Normal	12	42	15	0	0	0	0	0	0	0	0	0
1974	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1975	Wet	0	0	0	18	1	0	0	0	0	0	0	0
1976	Critical	0	0	0	18	21	12	2	-7	10	20	38	52
1977	Critical	58	66	77	95	91	80	72	63	57	52	46	46
1978	Above Normal	43	45	45	0	0	0	0	0	0	0	0	0
1979	Below Normal	0	0	0	18	0	0	0	0	0	0	0	-12
1980	Above Normal	-12	0	18	0	0	0	0	0	0	0	0	0
1981	Dry	0	3	3	6	26	-4	-15	-26	-23	32	16	0
1982	Wet	14	0	0	0	0	0	0	0	0	0	0	0
1983	Wet	0	0	0	0	0	0	0	0	0	0	0	0
1984	Wet	0	0	0	0	0	0	15	7	0	0	0	0
1985	Dry	0	0	0	0	19	19	49	79	58	37	20	14
1986	Wet	46	88	135	23	0	0	0	0	0	1	1	14
1987	Dry	14	10	10	26	29	21	12	3	3	6	15	23
1988	Critical	32	47	62	79	91	104	117	108	72	49	55	61
1989	Dry	69	79	95	112	59	0	0	88	69	103	126	113
1990	Critical	112	92	76	82	74	90	104	120	105	60	45	41
1991	Critical	68	97	129	129	95	54	25	-5	11	-3	23	24
1992	Critical	33	41	49	57	65	74	76	50	24	143	133	124
1993	Above Normal	108	92	96	16	0	0	0	0	0	1	2	3
1994	Critical	3	0	0	19	21	12	3	-7	-5	2	19	31
1995	Wet	42	53	69	0	0	0	0	0	0	0	0	0
1996	Wet	0	1	1	0	0	0	0	0	0	0	0	0
1997	Wet	0	37	0	0	0	0	15	30	45	45	44	144
1998	Wet	140	91	75	0	0	0	0	0	0	0	0	0
1999	Wet	0	0	0	0	0	0	0	0	0	0	0	0
2000	Above Normal	0	0	0	16	0	0	0	0	0	0	0	-2
2001	Dry	0	0	0	18	21	20	19	18	14	8	12	15
2002	Dry	31	48	68	0	0	0	0	22	43	13	12	-1
2003	Above Normal	-1	13	32	0	0	0	0	0	0	0	0	-1
	Average:	21	28	30	28	18	13	16	19	18	18	17	15
	Minimum:	-96	-96	-96	-109	-12	-27	-54	-87	-91	-94	-98	-97
	Maximum:	188	187	186	189	161	171	185	196	195	241	210	184
	Wet:	27	33	24	3	0	0	2	3	3	5	5	12
	Above Normal:	14	18	22	8	1	0	1	3	5	13	14	20
	Below Normal:	19	27	37	53	13	10	10	9	10	14	8	-6
	Dry:	8	16	26	35	29	15	23	40	38	32	29	20
	Critical:	39	44	51	64	61	57	57	49	45	33	35	35


Simulated Folsom Reservoir Storage for WY 1992
Storage (TAF)
700
600
500
400
300
200
100
0
5/1
5/15
5/29
6/12
6/26
7/10
7/24
8/7
8/21
9/4
9/18
10/2
10/16
10/30
11/13
11/27
12/11
12/25
2006 FMS - Total Storage
Modified FMS - Total Storage


Simulated Mean Monthly Nimbus Releases and MRR for WY 1992
Flow (cfs)
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
5/1
5/15
5/29
6/12
6/26
7/10
7/24
8/7
8/21
9/4
9/18
10/2
10/16
10/30
11/13
11/27
12/11
12/25
2006 FMS - Nimbus Release
Modified FMS - Nimbus Release
2006 FMS - MRR
Modified FMS - MRR


Simulated Mean Monthly Shasta Reservoir Releases for WY 1992
Flow (cfs)
15,000
12,000
9,000
6,000
3,000
0
5/1
5/15
5/29
6/12
6/26
7/10
7/24
8/7
8/21
9/4
9/18
10/2
10/16
10/30
11/13
11/27
12/11
12/25
2006 FMS - Shasta Release
Modified FMS - Shasta Release


Simulated Shasta Reservoir Storage and Cold Water Pool Volume for WY 1992
Storage (TAF)
3,000
2,500
2,000
1,500
1,000
500
0
5/1
5/15
5/29
6/12
6/26
7/10
7/24
8/7
8/21
9/4
9/18
10/2
10/16
10/30
11/13
11/27
12/11
12/25
2006 FMS - Total Storage
Modified FMS - Total Storage
2006 FMS - Storage <60°F
Modified FMS - Storage <60°F
2006 FMS - Storage <49°F
Modified FMS - Storage <49°F


Simulated Daily Sacramento River Water Temperatures for WY 1992
Water Temperature (°F)
66
64
62
60
58
56
54
52
50
48
46
5/1
5/15
5/29
6/12
6/26
7/10
7/24
8/7
8/21
9/4
9/18
10/2
10/16
10/30
11/13
11/27
12/11
12/25
2006 FMS - Release Target
Modified FMS - Release Target
2006 FMS - Shasta Release Temp
Modified FMS - Shasta Release Temp
2006 FMS - Ball's Ferry Temp
Modified FMS - Ball's Ferry Temp