
Appendix K

Sensitivity Analysis – Effects of Modeling Assumptions with Regard to Future Water Deliveries to Mexico

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Attachment A. Verification of Equal Proportional Reductions to United States and Mexico for Methodology A and Methodology B

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Appendix K. Sensitivity Analysis – Effects of Modeling Assumptions with Regard to Future Water Deliveries to Mexico

K.1 Introduction

The proposed federal action includes the adoption of specific interim guidelines for Lower Basin shortages. The interim guidelines would be used by the Secretary to determine those circumstances under which the Secretary would reduce the annual amount of water available for consumptive use from Lake Mead to the Colorado River Lower Division States (Arizona, California, and Nevada) (**Section 1.7**) below 7.5 million acre-feet (maf) (a “Shortage”) pursuant to Article II(B)(3) of the Consolidated Decree. The determination of deliveries to Mexico is not a part of the proposed federal action. Any such determination would be made in accordance with the United States-Mexico Treaty on Utilization of Water of the Colorado and Tijuana Rivers and of the Rio Grande (1944 Water Treaty). Nevertheless, modeling assumptions with respect to the distribution of shortages for the Lower Division States include water delivery reductions to Mexico in order to analyze potential impacts on hydrologic and other environmental resources (**Section K.2** and **Appendix A**, CRSS Model Documentation)¹. These modeling assumptions were applied to the No Action Alternative as well as the action alternatives, i.e., the modeling assumptions with regard to the distribution of shortages to the Lower Division States include water delivery reductions to Mexico and are distributed proportionally in all alternatives².

This appendix provides a comparative analysis of the sensitivity of the hydrologic resources to different modeling assumptions with regard to how Mexico would be affected by future water delivery reductions. Two methodologies for computing future water delivery reductions to Mexico, for modeling purposes, are described. The modeling assumptions used to implement the methodologies are also presented.

¹ Reclamation’s modeling assumptions are not intended to constitute an interpretation or application of the 1944 Water Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico. The United States will conduct all necessary and appropriate discussions regarding the proposed federal action and implementation of the 1944 Water Treaty with Mexico through the IBWC in consultation with the Department of State.

² The Continued Current Strategies Comparative baseline includes reductions and contributions for Mexico per Minute 323, which differ from the assumptions used in the No Action and action alternatives.

K.2 Description of Methodologies

Although many possible methodologies exist that would result in different volumes of potential future water delivery reductions to Mexico, two methodologies were considered in this analysis in order to assess the sensitivity of the hydrologic resources to a wide range of possible water delivery reductions³. Both methodologies are similar and both assume that the water deliveries to Mexico would be reduced in the same proportion as reductions in consumptive uses in the United States (shortages). The difference between the methodologies is whether shortages in both the Upper Basin and Lower Basin in the United States are considered when applying water delivery reductions to Mexico. Methodology A applies water delivery reductions to Mexico only when shortages to United States users in the Lower Basin occur, and water deliveries to Mexico are reduced in the same proportion as the reduction to United States users in the Lower Basin. This is the methodology that was used for the resource analyses in Volumes I and III of this Draft EIS. Methodology B applies water delivery reductions to Mexico when shortages to United States users in either the Upper Basin or Lower Basin or both occur, and water deliveries to Mexico are reduced in the same proportion as the reduction to United States users in both the Upper and Lower Basins. These methodologies are described below along with comparisons of the results of the methodologies.

K.2.1 Methodology A

Under Methodology A, water delivery reductions to Mexico are triggered only when deliveries to United States users in the Lower Basin are reduced. When triggered, the water deliveries to Mexico are reduced in the same proportion as the reduction to the United States users in the Lower Basin. The methodology is as follows:

- 1) Look-up the total Lower Basin shortage. Under the Supply Driven Alternative, shortages of specific magnitudes are triggered by specific Lake Mead effective elevations⁴.
 - Example: for the Supply Driven Alternative, if Lake Mead effective elevation is below 1,000 feet, the total Lower Basin shortage is 2.1 maf
- 2) Compute the water delivery reduction to Mexico by multiplying the total Lower Basin shortage by 16.67 percent. This percentage is computed by taking the ratio of Mexico's allotment to the sum of the Lower Basin United States apportionments and Mexico's allotment ($1.5 \text{ maf} / (7.5 \text{ maf} + 1.5 \text{ maf}) = 0.1667$ or 16.67 percent) and ensures that the

³ Reclamation's modeling assumptions are not intended to constitute an interpretation or application of the 1944 Water Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico. The United States will conduct all necessary and appropriate discussions regarding the proposed federal action and implementation of the 1944 Water Treaty with Mexico through the IBWC in consultation with the Department of State.

⁴ The effective elevation at Lake Mead is the observed elevation minus any stored conserved water that is excluded from operational determinations.

water delivery reductions to Mexico are always proportional to the shortages to the United States users in the Lower Basin.

- Example: assuming the total Lower Basin shortage is 2.1 maf, the water delivery reduction to Mexico would be computed as:

$$2.1 \text{ maf} * 16.67 \text{ percent} = 0.35 \text{ maf}$$

A summary of shortages to United States users in the Lower Basin and water delivery reductions to Mexico for four example volumes of total Lower Basin shortage under the Supply Driven Alternative is provided in **Table K-1** and **Table K-2**, respectively.

Table K-1
Example Shortages to United States Users in the Lower Basin and Water Delivery Reductions to Mexico for Methodology A

Lake Mead Effective Elevation (feet)	Total Lower Basin Shortage (maf)	Shortage to United States Lower Basin Users (maf)	Percent Reduction to United States Lower Basin Users	Total U.S. Delivery (maf)
1,135	0.75	0.625	8.3	6.875
1,125 to 1,050	1.5	1.25	16.7	6.25
1,025	1.8	1.5	20.0	6.0
Less than 1,000	2.1	1.75	23.3	5.75

Table K-2
Example Water Delivery Reductions to Mexico for Methodology A

Lake Mead Effective Elevation (feet)	Total Lower Basin Shortage (maf)	Reduction to Mexico (maf)	Percent Reduction to Mexico	Total Delivery to Mexico (maf)
1,135	0.75	0.125	8.3	1.375
1,125 to 1,050	1.5	0.25	16.7	1.25
1,025	1.8	0.3	20.0	1.2
Less than 1,000	2.1	0.35	23.3	1.15

Note: Reclamation's modeling assumptions are not intended to constitute an interpretation or application of the 1944 Water Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico.

K.2.2 Methodology B

Under Methodology B, water delivery reductions to Mexico are triggered by shortages to United States users in the Upper Basin, in the Lower Basin, or both. When triggered, the water deliveries to Mexico are reduced in the same proportion as the reduction to United States users in both the Upper and Lower Basins. The methodology is as follows:

- 1) Look-up the shortage to be applied to United States users in the Lower Basin.
 - Example: for the Supply Driven Alternative, if Lake Mead elevation is between 1,125 and 1,050 feet, the shortage to United States users in the Lower Basin is 1.250 maf (**Table K-1**)
- 2) Compute the modeled shortage to United States users in the Upper Basin. Modeled shortages to United States users in the Upper Basin are assumed to occur when the delivery to those users is less than their depletion demand and is calculated as Upper Basin depletion demand minus Upper Basin modeled use (see **Section K.3.1** for more details).
 - Example: in the year 2030, the Upper Basin depletion demand is 5.534 maf and under one hydrologic sequence, CRSS computed a delivery of 4.427 maf, resulting in a shortage to United States users in the Upper Basin of 1.107 maf, in addition to the shortage to United States users in the Lower Basin of 1.250 maf⁵
- 3) Compute the proportional reduction to United States users in both the Upper and Lower Basins as the sum of shortages to United States users in the Upper and Lower Basin divided by the sum of the Upper Basin scheduled use and the total United States Lower Basin apportionments (7.5 maf).
 - Example: the proportional reduction to the United States users would be computed as:
$$(1.250 \text{ maf} + 1.107 \text{ maf}) / (7.5 \text{ maf} + 5.534 \text{ maf}) = 18.1 \text{ percent}$$
- 4) Compute water delivery reduction to Mexico by applying the same proportional reduction to United States users in both the Upper and Lower Basins to Mexico. This is computed by multiplying Mexico's annual Colorado River allotment (1.5 maf) by the proportional reduction to United States users in both the Upper and Lower Basins.
 - Example: given the proportional reduction to United States users in both the Upper and Lower Basins is 18.1 percent, the water delivery reduction to Mexico would be computed as:
$$1.5 \text{ maf} * 18.1 \text{ percent} = 0.271 \text{ maf}$$

Since Upper Basin depletion demand varies each year (**Appendix L**, Upper Division States Depletion Schedules) and the computed shortages in the Upper Basin vary for each hydrologic sequence, a wide range of possible proportional reductions are simulated by Methodology B (from 4

⁵ The computed annual Upper Basin shortage in CRSS is not available until the end of the calendar year. In this example, the 2030 shortage would be used to set the 2031 water delivery reductions to Mexico.

percent to approximately 44 percent resulting in water delivery reductions to Mexico of approximately 0.058 to 0.659 maf as shown in **Figure K-3**.

Table K-3 shows some examples based on assumed Upper Basin modeled shortage, which fall within the range of actual modeled Upper Basin shortage (see **Section K.3.1**). The examples in **Table K-2** use an Upper Basin depletion demand of 5.835 maf (the average depletion demand over the 2027-2060 modeling period), resulting in the proportional reduction to the United States equal to the sum of Upper and Lower Basin United States shortages divided by 13.335 maf (7.5 maf plus 5.835 maf).

Table K-3
Examples of Shortages to United States Users in the Upper and Lower Basins and
Water Delivery Reductions to Mexico for Methodology B

Lake Mead Effective Elevation (feet)	Shortage to Lower Basin (maf)	Example Modeled Upper Basin Shortage (maf)	Total Shortage to United States (maf)	% Reduction to United States*	Reduction to Mexico Delivery (maf)**	% Reduction to Mexico
above 1,145	0.0	0.2	0.2	1.5	0.022	1.5
		1.4	1.4	10.5	0.157	10.5
		2.5	2.5	18.7	0.281	18.7
1,125 to 1,050	1.25	0.2	1.45	10.9	0.163	10.9
		1.4	2.65	19.9	0.298	19.9
		2.5	3.75	28.1	0.422	28.1
below 1,000	1.75	0.2	1.95	14.6	0.219	14.6
		1.4	3.15	23.6	0.354	23.6
		2.5	4.25	31.9	0.478	31.9

* Percent reduction to United States based on average depletion demand in the Upper Basin (5.835) and the Lower Basin apportionment (7.5 maf): $5.835 \text{ maf} + 7.5 \text{ maf} = 13.335 \text{ maf}$

** Reclamation's modeling assumptions are not intended to constitute an interpretation or application of the 1944 Water Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico.

K.3 Modeling Results

An analysis was performed to test the sensitivity of the hydrologic resources to these two sets of modeling assumptions (Methodology A and B). The Colorado River Simulation System (CRSS) model was used to simulate water deliveries to Mexico under these two methodologies with all other modeling assumptions held constant. The modeling assumptions under the Supply Driven Alternative were used for this assessment with one major exception. It was assumed that there was no storage and delivery mechanism in place in order to isolate the effects of each methodology. Additionally, only the Supply Driven Alternative using the Lower Basin priority shortage distribution method is used for this sensitivity analysis, as the emphasis is not on how different Lower Division

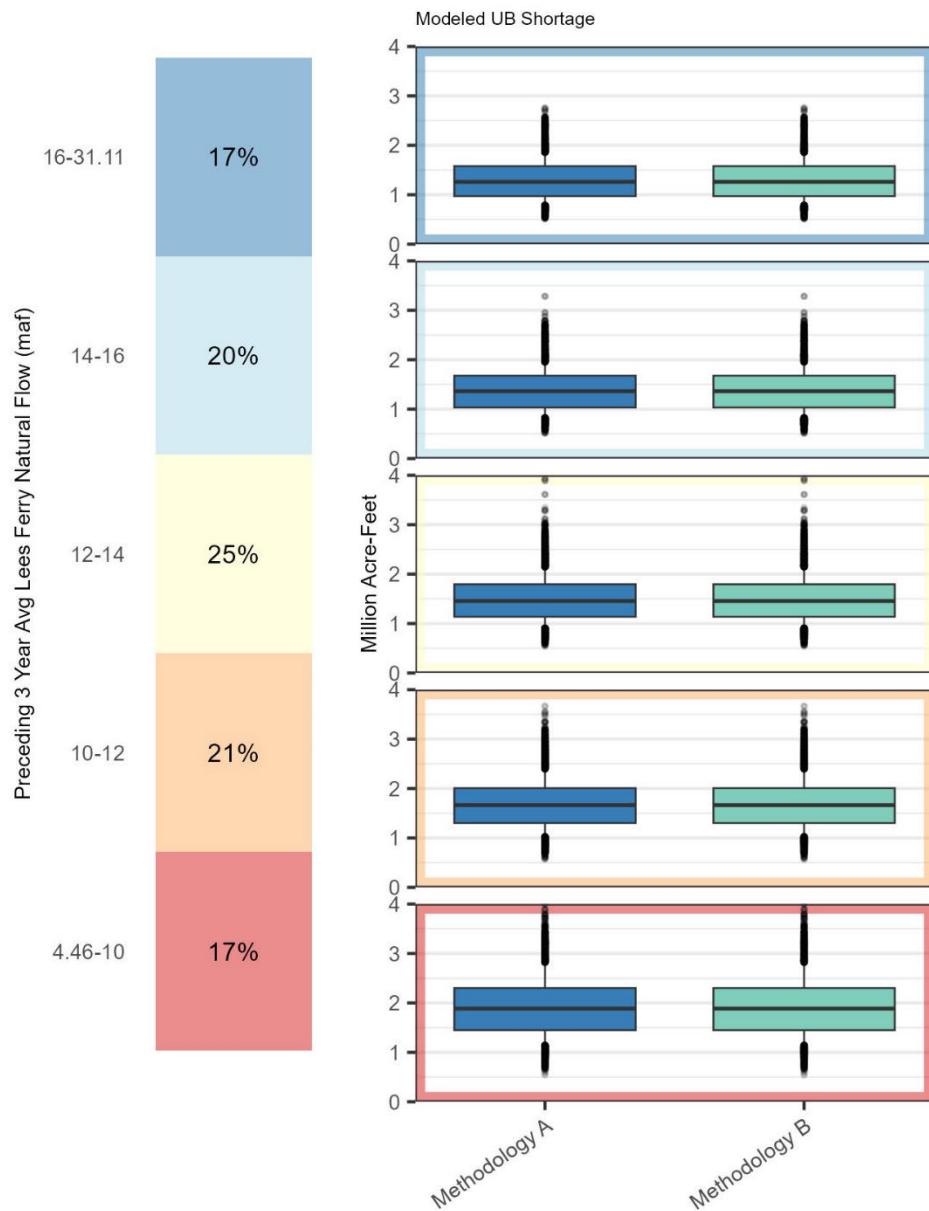
State shortage distributions affect the results. See **Appendix A**, CRSS Model Documentation, for detailed modeling assumptions. Results are presented using conditional boxplots, which separate results based on five flow categories (see **Chapter 3.2.6** for additional details on conditional boxplots).

K.3.1 Upper Basin Modeled Shortages

CRSS assumes that shortages in the Upper Basin occur only when there is not sufficient water available within a given reach to meet a user's demand. For purposes of this Draft EIS analysis, the total Upper Basin modeled shortage for any year is computed as the total Upper Basin depletion subtracted from the Upper Basin depletion demand for that year. **Figure K-1** provides a conditional boxplot of Upper Basin modeled shortage generated by CRSS over the period 2027 through 2060. The computed shortages to the Upper Basin users are dependent solely upon the hydrologic sequences and are therefore identical under Methodology A and Methodology B.

Figure K-1 shows that the Upper Basin modeled shortages range from 0.5 to 4.1 maf, with a modeled shortage occurring in all years. The Upper Basin modeled shortages generally increase in drier flow categories. In the average flow category, the median Upper Basin modeled shortage is 1.5 maf, increasing to 1.7 and 1.9 maf in the dry and critically dry flow categories, respectively. As a point of reference, a 1.5 maf Upper Basin modeled shortage represents approximately 26 percent of the average Upper Basin depletion demand during the modeled period.

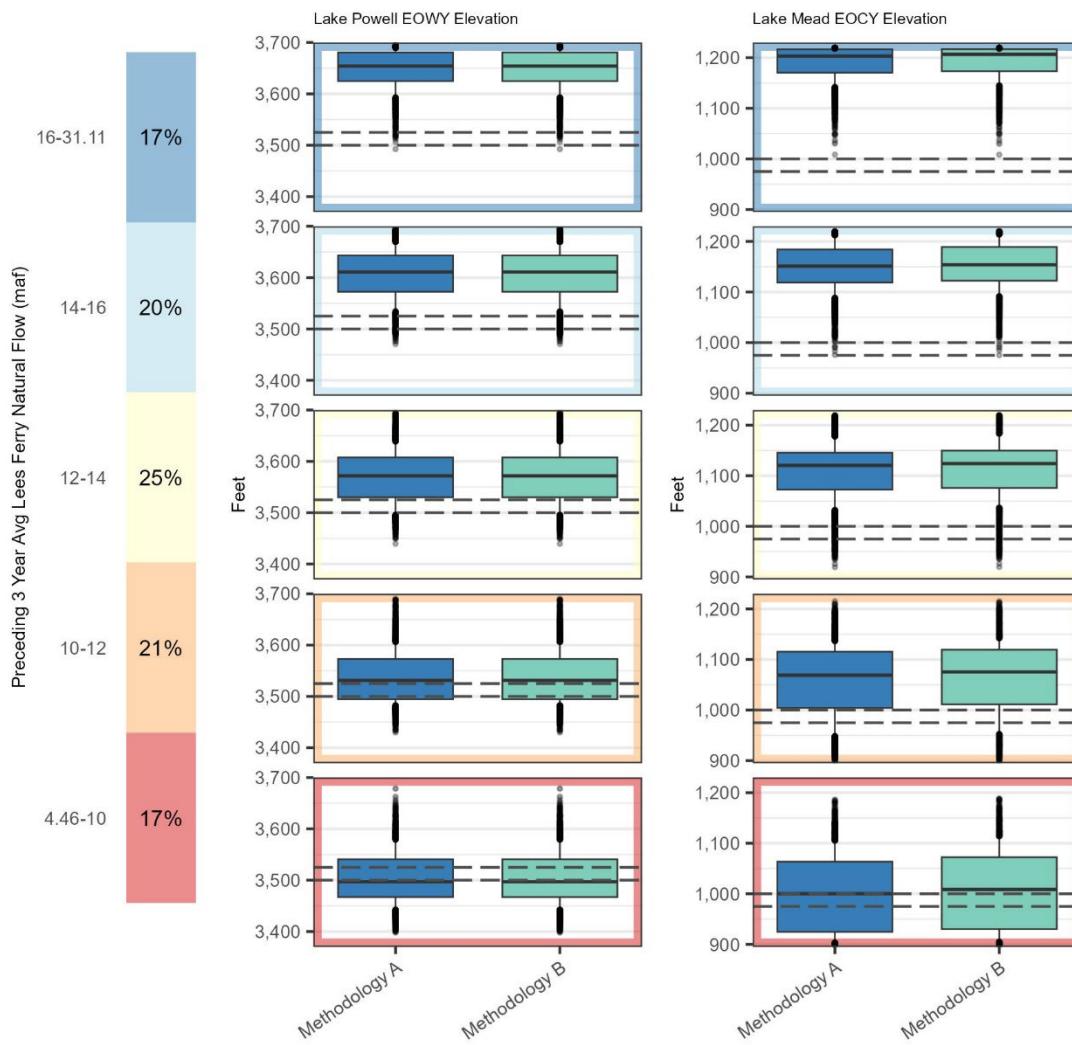
Figure K-1
Annual Upper Basin modeled shortage



K.3.2 Lake Powell and Lake Mead Water Surface Elevations

Figure K-2 compares the elevations at Lake Powell and Lake Mead under Methodology A and B. Lake Powell elevations are identical under Methodology A and Methodology B because Lake Powell inflow and release do not change with different assumptions for water delivery reductions to Mexico.

Figure K-2
End-of-Water Year Lake Powell and End-of Calendar Year Lake Mead elevations



There are small differences in Lake Mead elevations between Methodology A and Methodology B, with the elevations in Methodology B typically higher than those in Methodology A. In the average flow category, the median Lake Mead elevation from Methodology B is approximately 4 feet higher than Methodology A (1,124 and 1,120 feet respectively). In the dry and critically dry flow categories, the median elevation is approximately 6 feet and 8 feet higher, respectively, in Methodology B than

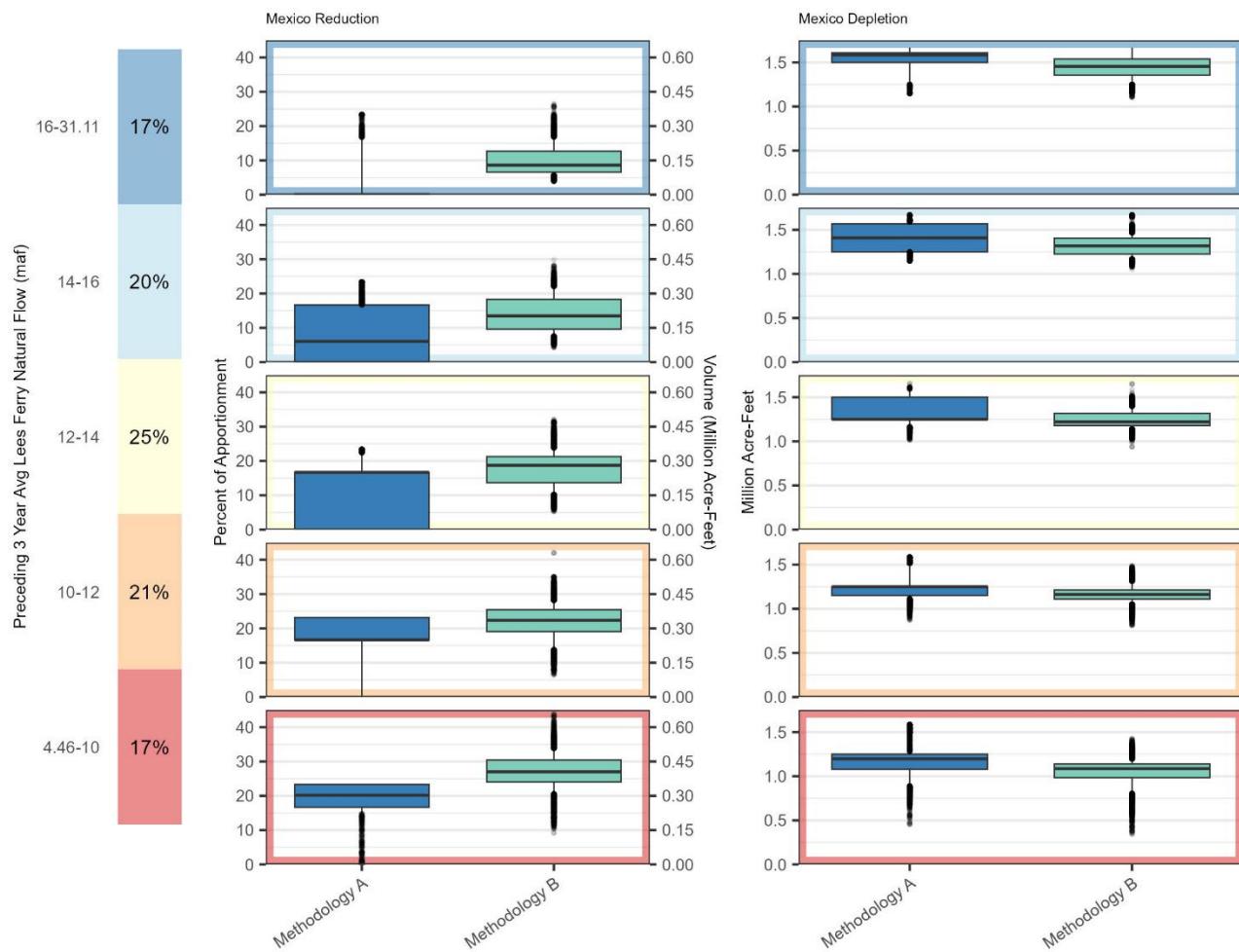
in Methodology A. This is because Methodology B typically results in higher delivery reductions to Mexico than Methodology A (**Section K.3.3**), which results in higher Lake Mead elevations.

K.3.3 Comparison of Water Deliveries to Mexico

As described in **Section 4.2**, water deliveries to Mexico are assumed to be 1.5 maf, except when the model assumes that additional deliveries of up to 0.2 maf have been scheduled or a water delivery reduction has been incurred. Additional deliveries to Mexico of up to 0.2 maf are assumed to occur when Lake Mead is in flood control operations, under 70R Surplus Conditions, or in the assumed “Domestic” Surplus Conditions. A Domestic Surplus (up to 0.5 maf) is assumed to occur when the August 1 Lake Mead effective elevation is at or above 1,165 feet and Flood Control or 70R Surplus is not triggered. When triggered it is assumed that a proportional share (up to 83.35 thousand acre-feet (kaf)) of the additional water deliveries is provided to Mexico (above 1.5 maf and not more than 1.7 maf total). Reductions in the water deliveries to Mexico are simulated consistent with the modeling assumptions described previously under each methodology. Consequently, simulated water deliveries to Mexico are expected to fluctuate throughout the analysis period (2027 through 2060) reflecting variations in hydrologic conditions under these assumptions.

Figure K-3 compares the modeled water delivery reductions to Mexico (volumetrically and as a percent of Mexico’s 1.5 maf allotment) and the total annual delivery to Mexico (Mexico depletion) for the two methodologies. Overall, in all flow categories, Methodology B results in higher delivery reductions and lower annual deliveries than Methodology A. **Figure K-3** shows that Methodology A has some years where there are no delivery reductions (e.g., at the 25th percentile in the average flow category, and at the 10th percentile for the dry flow category), while Methodology B always has some delivery reductions. Additionally, Methodology A results in a maximum delivery reduction of 0.35 maf (or 23.33 percent of allotment), which corresponds to 16.67 percent of the maximum total Lower Basin shortage of 2.1 maf in the Supply Driven Alternative. The maximum delivery reduction from Methodology B ranges from 0.398 maf (26.56 percent of allotment) in the wet flow category to 0.659 maf (43.94 percent of allotment) in the critically dry flow category. **Table K-4** and **Table K-5** report the water delivery reductions to Mexico for all flow categories as a percent of allocation and volumetrically, respectively. The higher overall reductions, higher maximum reductions, and larger range of reductions in Methodology B are because Upper Basin modeled shortages occur frequently and are included in the calculation of the proportional reduction under Methodology B.

Figure K-3
Annual delivery reductions and deliveries to Mexico



Note: The modeled annual delivery reductions and deliveries to Mexico include modeling assumptions for reductions in water deliveries to Mexico and storage available to Mexico. Reclamation's modeling assumptions are not intended to constitute an interpretation or application of the 1944 Water Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico. The United States will conduct all necessary and appropriate discussions regarding the proposed federal action and implementation of the 1944 Water Treaty with Mexico through the IBWC in consultation with the Department of State.

Table K-4
Water Delivery Reductions to Mexico (Percent of Allotment)

Scenario	Flow Category	Max (%)	90% (%)	75% (%)	50% (%)	25% (%)	10% (%)	Min (%)
Supply Driven (Method A)	> 16	23.33	16.67	0.28	0.00	0.00	0.00	0.00
Supply Driven (Method A)	14-16	23.33	16.67	16.67	6.06	0.00	0.00	0.00
Supply Driven (Method A)	12-14	23.33	22.34	16.67	16.67	0.00	0.00	0.00
Supply Driven (Method A)	10-12	23.33	23.33	23.18	16.67	16.67	0.00	0.00
Supply Driven (Method A)	< 10	23.33	23.33	23.33	20.18	16.67	14.85	0.00
Supply Driven (Method B)	> 16	26.56	16.79	12.69	8.64	6.55	5.66	3.87
Supply Driven (Method B)	14-16	29.84	22.03	18.33	13.50	9.61	7.55	4.33
Supply Driven (Method B)	12-14	32.03	23.84	21.29	18.70	13.67	10.21	5.30
Supply Driven (Method B)	10-12	42.00	28.21	25.45	22.37	19.08	13.79	6.47
Supply Driven (Method B)	< 10	43.94	33.79	30.44	26.99	24.04	20.60	9.21

Note: The modeled delivery reductions to Mexico include modeling assumptions for reductions in water deliveries to Mexico and storage available to Mexico. Reclamation's modeling assumptions are not intended to constitute an interpretation or application of the 1944 Water Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico. The United States will conduct all necessary and appropriate discussions regarding the proposed federal action and implementation of the 1944 Water Treaty with Mexico through the IBWC in consultation with the Department of State.

Table K-5
Water Delivery Reductions to Mexico (Volumetric)

Scenario	Flow Category	Max (maf)	90% (maf)	75% (maf)	50% (maf)	25% (maf)	10% (maf)	Min (maf)
Supply Driven (Method A)	> 16	0.35	0.25	0.004	0.0	0.0	0.0	0.0
Supply Driven (Method A)	14-16	0.35	0.25	0.25	0.091	0.0	0.0	0.0
Supply Driven (Method A)	12-14	0.35	0.335	0.25	0.25	0.0	0.0	0.0
Supply Driven (Method A)	10-12	0.35	0.35	0.348	0.25	0.25	0.0	0.0
Supply Driven (Method A)	< 10	0.35	0.35	0.35	0.303	0.25	0.223	0.0
Supply Driven (Method B)	> 16	0.398	0.252	0.19	0.13	0.098	0.085	0.058
Supply Driven (Method B)	14-16	0.448	0.33	0.275	0.202	0.144	0.113	0.065
Supply Driven (Method B)	12-14	0.481	0.358	0.319	0.281	0.205	0.153	0.079
Supply Driven (Method B)	10-12	0.630	0.423	0.382	0.336	0.286	0.207	0.097
Supply Driven (Method B)	< 10	0.659	0.507	0.457	0.405	0.361	0.309	0.138

Note: The modeled delivery reductions to Mexico include modeling assumptions for reductions in water deliveries to Mexico and storage available to Mexico. Reclamation's modeling assumptions are not intended to constitute an interpretation or application of the 1944 Water Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico. The United States will conduct all necessary and appropriate discussions regarding the proposed federal action and implementation of the 1944 Water Treaty with Mexico through the IBWC in consultation with the Department of State.

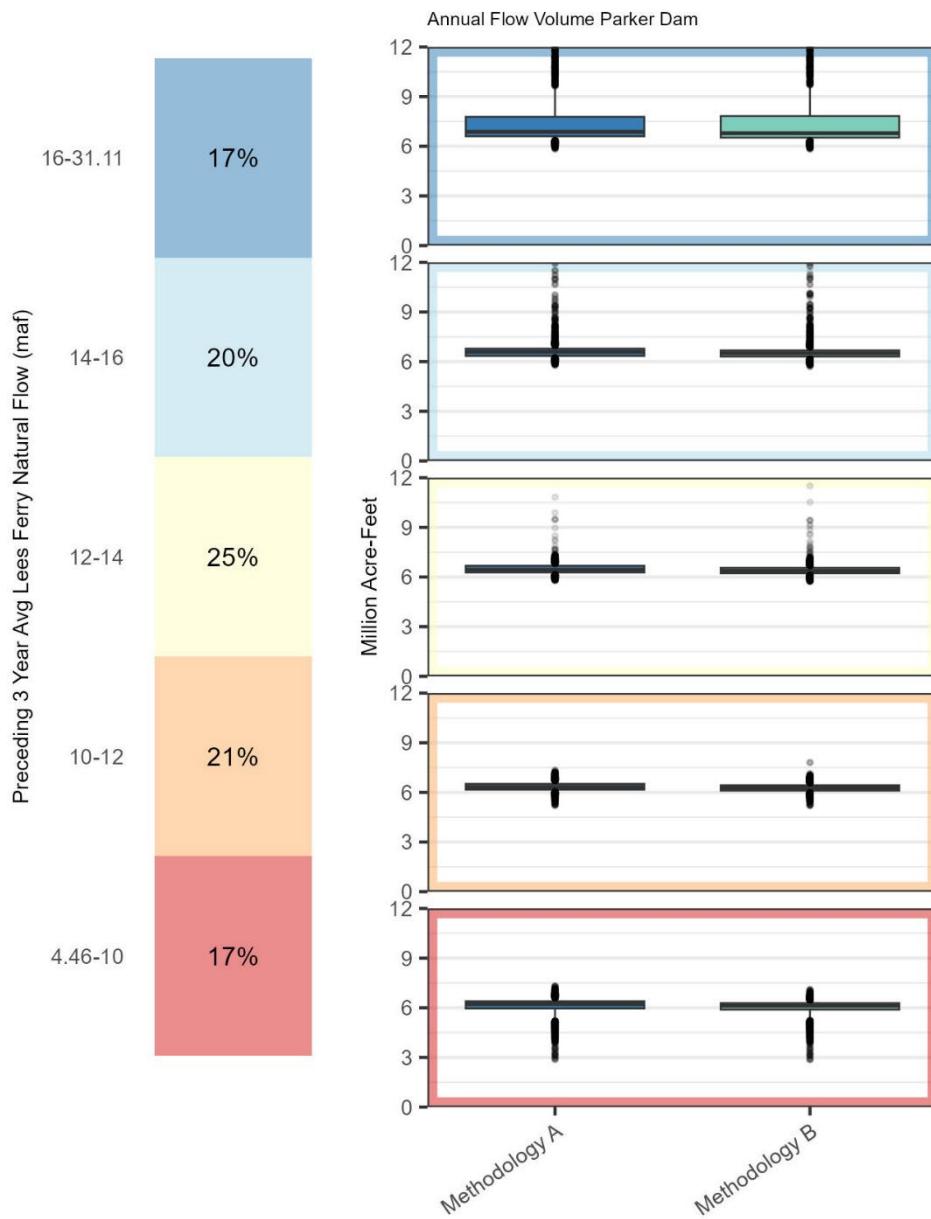
The annual delivery to Mexico (**Figure K-3**) shows similar information as the delivery reductions, but incorporates years with additional deliveries to Mexico because of Flood Control, 70R, or Domestic Surplus, as previously discussed. Additionally, the annual deliveries incorporate years where the deliveries to Mexico are reduced beyond the specified reductions in Methodology A or B due to dead pool-related reductions (see **Section 3.4.2**, Issue 3 for an explanation of dead pool-related reductions). For example, the minimum annual delivery in the critically dry flow category in Methodology A is 0.456 maf. With a maximum delivery reduction of 0.35 maf, the minimum delivery due to the specified delivery reductions would be 1.15 maf; the difference between 0.456 maf and 1.15 maf is due to the dead pool-related reductions, which occur when Lake Mead approaches dead pool. Conversely, the maximum annual delivery to Mexico is 1.67 maf⁶ in the wet and moderately wet flow categories of both methodologies and reflects the additional deliveries to Mexico above their 1.5 maf allocation. Overall, the annual deliveries to Mexico are lower in Methodology B than in Methodology A, for the same reasons that the reductions are higher, as previously discussed.

K.3.4 Parker Dam Releases

The flows in the river from Parker Dam to Imperial Dam result primarily from the controlled releases from Parker Dam. **Figure K-4** compares the releases from Parker Dam. There are only small differences in the annual releases from Parker Dam between Methodology A and B. In the average flow category, the median Parker Dam release is 6.44 maf in Methodology A and 6.38 maf in Methodology B; in the dry flow category Methodology A is 6.32 maf and Methodology B is 6.25 maf; in the critically dry flow category Methodology A is 6.22 maf and Methodology B is 6.12 maf. Methodology B produces lower releases in all flow categories across nearly all boxplot statistics, consistent with earlier findings showing greater delivery reductions to Mexico—and therefore lower releases from Parker Dam.

⁶ The maximum annual delivery to Mexico should be 1.7 maf based on the 1944 Water Treaty (additional deliveries to Mexico of up to 0.2 maf are assumed to occur when Lake Mead is in flood control operations or 70R Surplus). An error in the model resulted in the maximum of 1.67 maf, which will be addressed for the Final EIS.

Figure K-4
Flow Conditioned Box Plot of Parker Releases



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Attachment A

Verification of Equal Proportional Reductions to United States and Mexico for Methodology A and Methodology B

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Attachment A. Verification of Equal Proportional Reductions to United States and Mexico for Methodology A and Methodology B

Both Methodology A and Methodology B assume that the water deliveries to Mexico would be reduced in the same proportion as reductions in consumptive uses in the United States (shortages). This attachment provides additional information with regard to equal proportional reductions.

Model Verification

In order to verify that the model was accurately computing equal proportional water delivery reductions to Mexico, output from the model was used to compute reductions for both the United States and Mexico as a percentage of the appropriate demand⁷. **Table Att. A-1** provides a comparison of these computed values using Methodology A and Methodology B for the United States and Mexico. **Table Att. A-1** verifies that under both methodologies, deliveries to Mexico are reduced in the same proportion as deliveries to the United States.

Table Att. A-1
Reduction in Deliveries to Mexico and U.S. Shortage as a percentage of demand

Scenario	Entity	Flow Category	Max (kaf)	90% (kaf)	75% (kaf)	50% (kaf)	25% (kaf)	10% (kaf)	Min (kaf)
Supply Driven (Method A)	Mexico	> 16	23.33	16.67	0.28	0.00	0.00	0.00	0.00
Supply Driven (Method A)		14-16	23.33	16.67	16.67	6.06	0.00	0.00	0.00
Supply Driven (Method A)		12-14	23.33	22.34	16.67	16.67	0.00	0.00	0.00
Supply Driven (Method A)		10-12	23.33	23.33	23.18	16.67	16.67	0.00	0.00
Supply Driven (Method A)		< 10	23.33	23.33	23.33	20.18	16.67	14.85	0.00
Supply Driven (Method A)		> 16	23.33	16.67	0.28	0.00	0.00	0.00	0.00
Supply Driven (Method A)	United States Lower Basin users	14-16	23.33	16.67	16.67	6.06	0.00	0.00	0.00
Supply Driven (Method A)		12-14	23.33	22.34	16.67	16.67	0.00	0.00	0.00
Supply Driven (Method A)		10-12	23.33	23.33	23.18	16.67	16.67	0.00	0.00
Supply Driven (Method A)		< 10	23.33	23.33	23.33	20.18	16.67	14.85	0.00

⁷ For Mexico, it is always the reduction divided by 1.5 maf. For the United States, it is the Lower Basin shortage divided by 7.5 maf for Methodology A, and Lower Basin shortage plus Upper Basin modeled shortage divided by 7.5 maf plus the Upper Basin depletion demand for the year for Methodology B.

Att. A. Verification of Equal Proportional Reductions to United States and Mexico for
Methodology A and Methodology B

Scenario	Entity	Flow Category	Max (kaf)	90% (kaf)	75% (kaf)	50% (kaf)	25% (kaf)	10% (kaf)	Min (kaf)
Supply Driven (Method B)	Mexico	> 16	26.56	16.79	12.69	8.64	6.55	5.66	3.87
Supply Driven (Method B)		14-16	29.84	22.03	18.33	13.50	9.61	7.55	4.33
Supply Driven (Method B)		12-14	32.03	23.84	21.29	18.70	13.67	10.21	5.30
Supply Driven (Method B)		10-12	42.00	28.21	25.45	22.37	19.08	13.79	6.47
Supply Driven (Method B)		< 10	43.94	33.79	30.44	26.99	24.04	20.60	9.21
Supply Driven (Method B)		> 16	26.56	16.79	12.69	8.64	6.55	5.66	3.87
Supply Driven (Method B)	United States	14-16	29.84	22.03	18.33	13.50	9.61	7.55	4.33
Supply Driven (Method B)		12-14	32.03	23.84	21.29	18.70	13.67	10.21	5.30
Supply Driven (Method B)		10-12	42.00	28.21	25.45	22.37	19.08	13.79	6.47
Supply Driven (Method B)		< 10	43.94	33.79	30.44	26.99	24.04	20.60	9.21

Note: The modeled delivery reductions to Mexico include modeling assumptions for reductions in water deliveries to Mexico and storage available to Mexico. Reclamation's modeling assumptions are not intended to constitute an interpretation or application of the 1944 Water Treaty or to represent current United States policy or a determination of future United States policy regarding deliveries to Mexico. The United States will conduct all necessary and appropriate discussions regarding the proposed federal action and implementation of the 1944 Water Treaty with Mexico through the IBWC in consultation with the Department of State.