

## **Appendix P**

### **Additional CRSS Modeling Output**

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This appendix contains additional supporting CRSS modeling output and hydrologic information. Hydrologic information provided in this appendix is referenced in the Hydrologic Resources, Water Deliveries, Water Quality, Air Quality, Biological Resources, Cultural Resources, and Electrical Power Resources sections of the EIS.



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## Hydrologic Resources Information

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Figure P-HR-1  
 Lake Powell Annual Evaporation  
 Comparison of Action Alternatives to No Action Alternative  
 Average Values

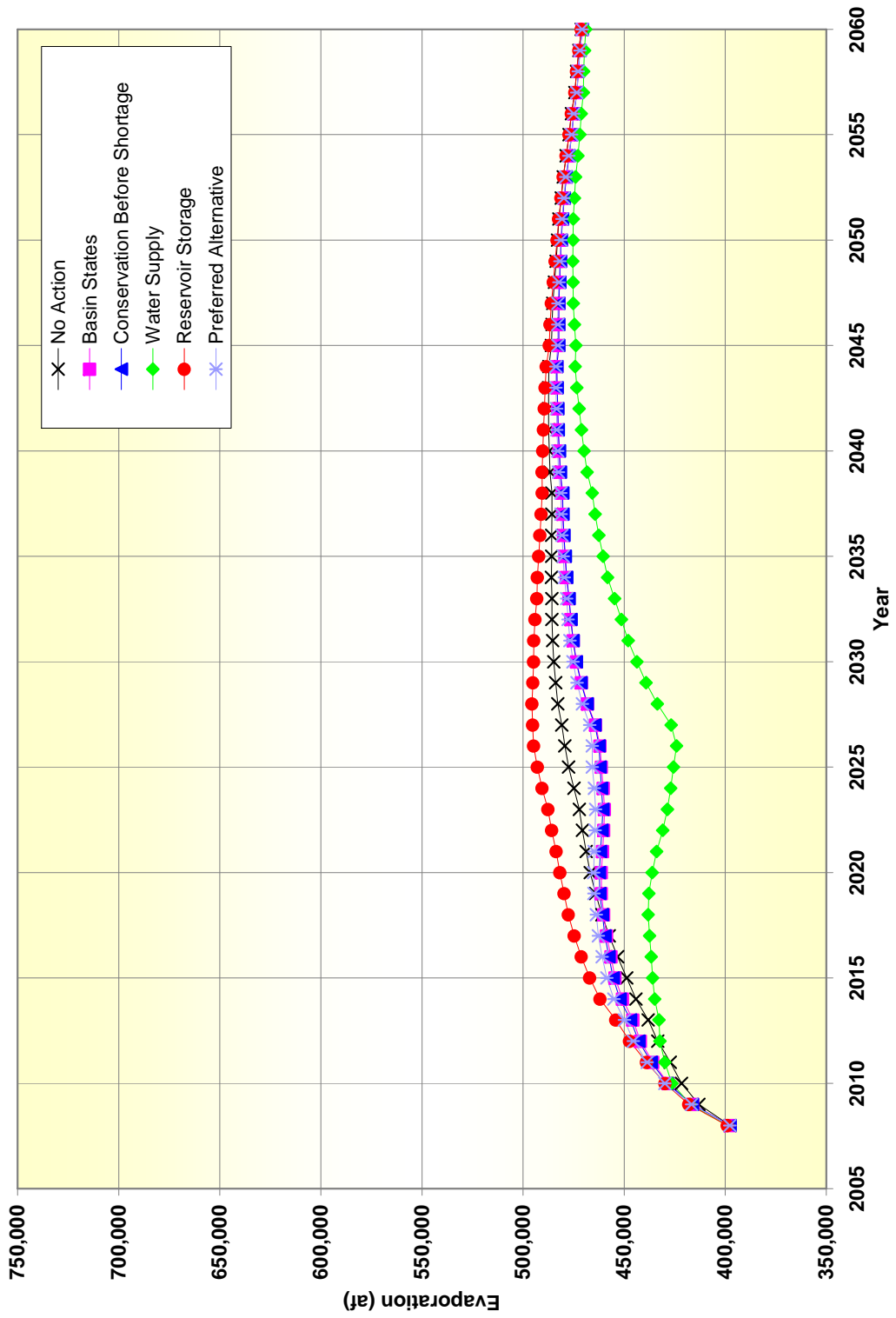


Figure P-HR-2  
 Lake Powell Annual Evaporation  
 Comparison of Action Alternatives to No Action Alternative  
 Median Values (50th Percentile)

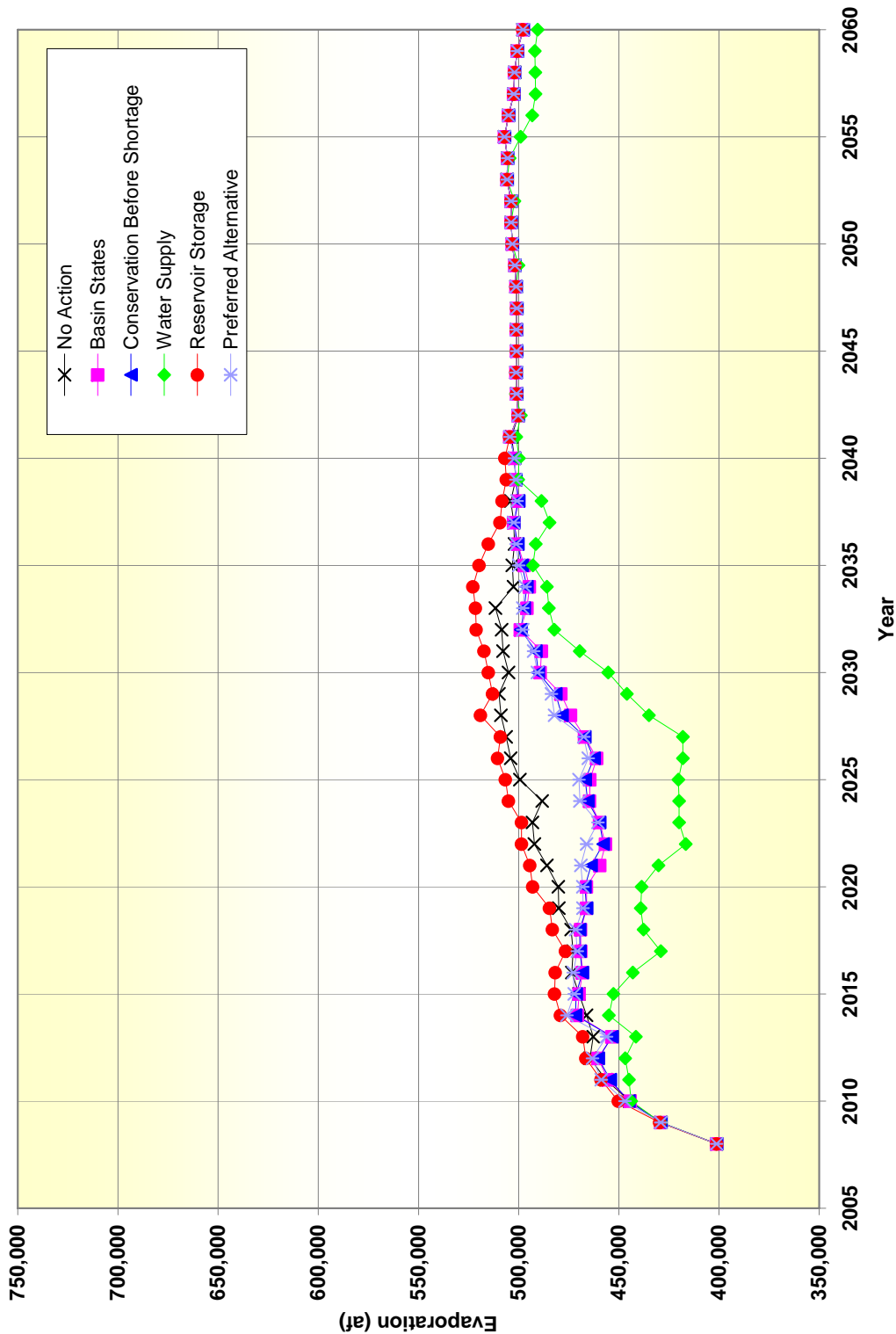




Figure P-HR-3  
 Lake Mead Annual Evaporation  
 Comparison of Action Alternatives to No Action Alternative  
 Average Values

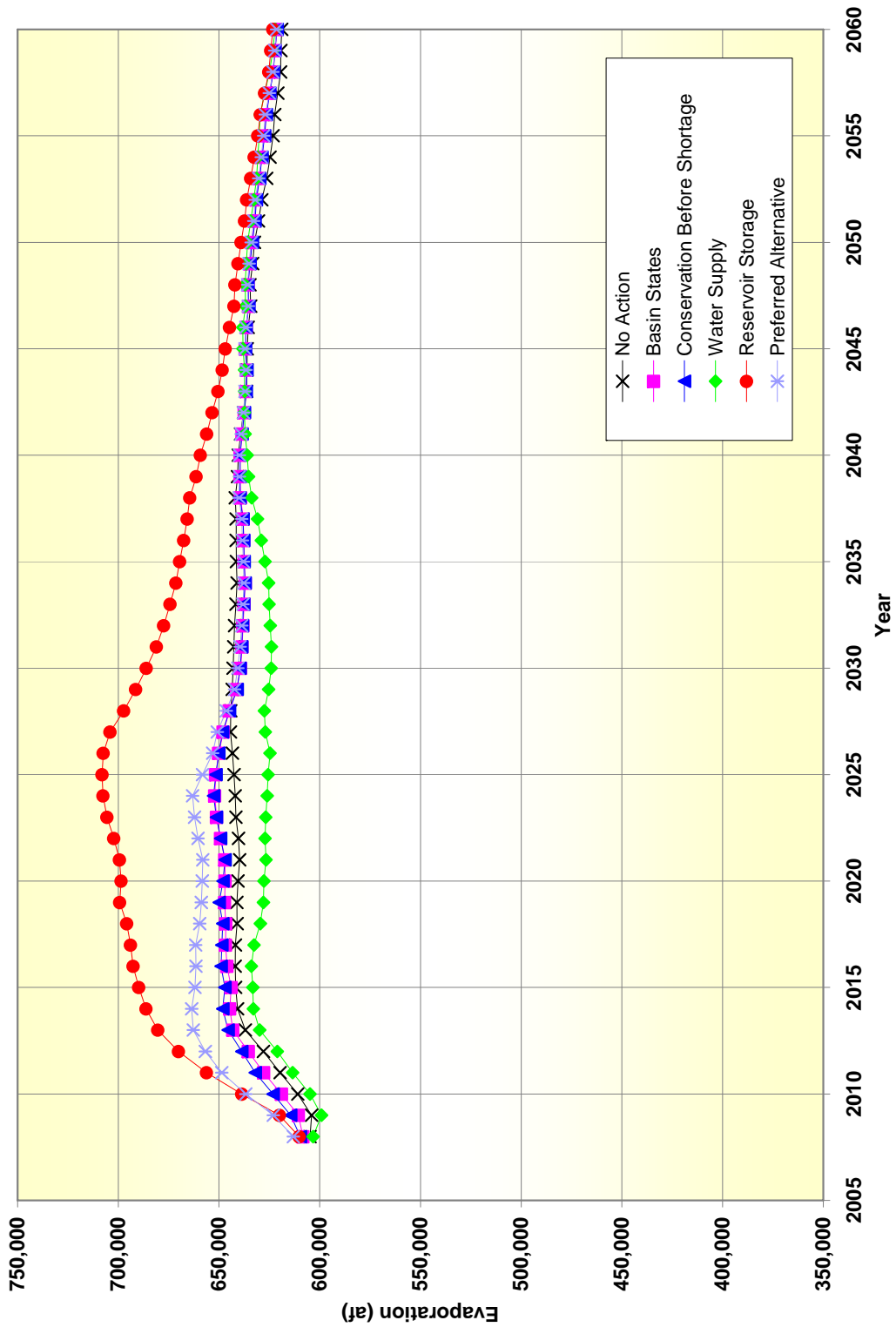
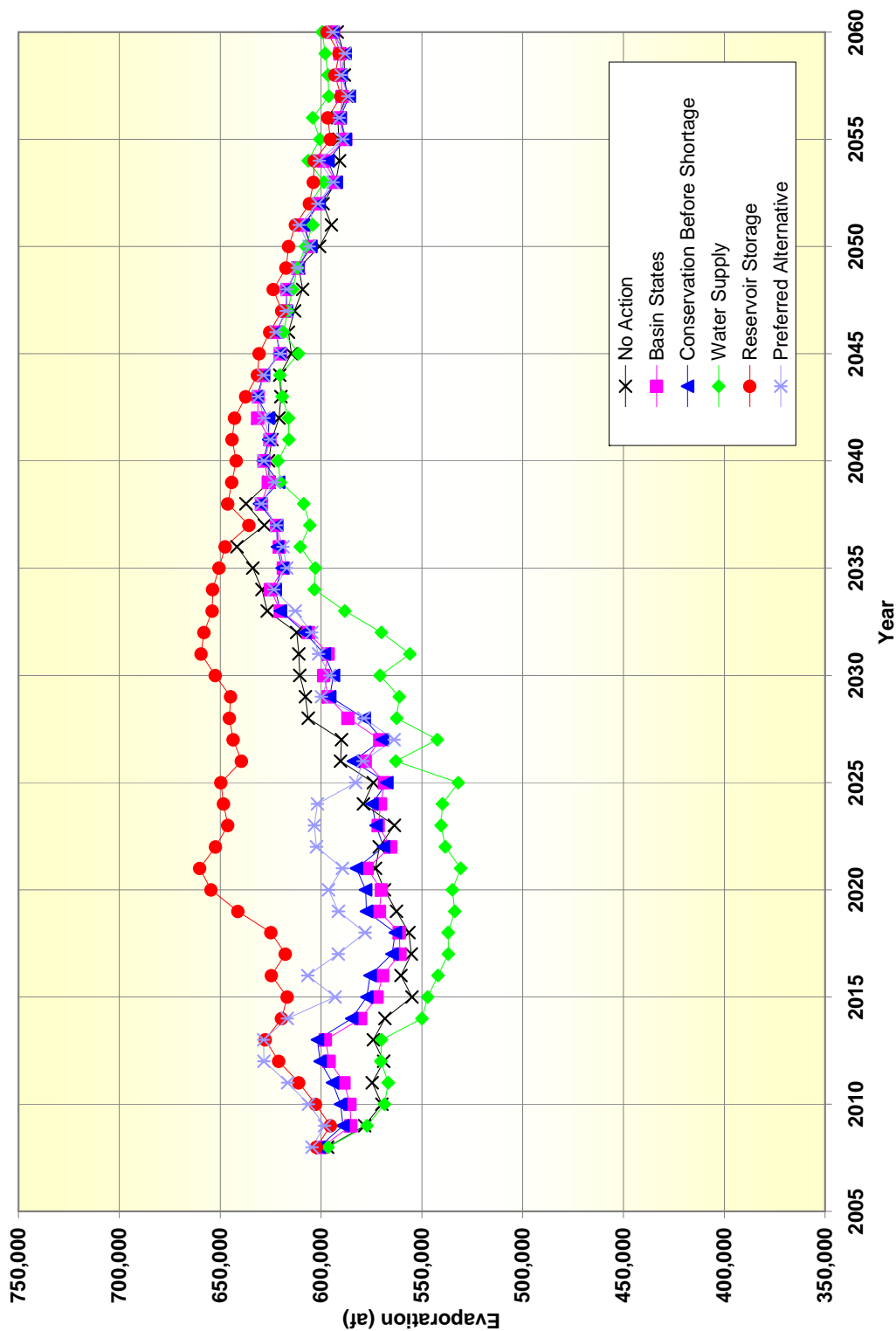


Figure P-HR-4  
 Lake Mead Annual Evaporation  
 Comparison of Action Alternatives to No Action Alternative  
 Median Values (50<sup>th</sup> Percentile)



## **P-HR.1 Beach/Habitat-Building Flows**

### **P-HR.1.1 Introduction**

The construction and operation of Glen Canyon Dam has caused two major changes related to sediment resources downstream in Glen Canyon and Grand Canyon. The first change is reduced sediment supply. Because Glen Canyon Dam and Lake Powell trap virtually all of the incoming sediment from the Upper Basin, releases from Glen Canyon Dam are mostly as clear water. The second major change is the reduction in the high water zone from pre-dam annual flood elevations to powerplant release elevations. Thus, the height of annual sediment deposition and erosion in the Colorado River reaches downstream of Glen Canyon Dam has been reduced.

During the investigations leading to the preparation of the *Operation of Glen Canyon Dam Final EIS* (Reclamation 1995), the relationships between releases from Glen Canyon Dam and downstream sedimentation processes were brought sharply into focus, and flow patterns designed to conserve sediment for building beaches and habitat (i.e., beach/habitat-building flow, or BHBF releases) were identified. The BHBF releases are scheduled high releases of short duration that exceed the hydraulic capacity of the powerplant. Such releases were presented as a commitment in the 1996 ROD for the *Operation of the Glen Canyon Dam FEIS* (Reclamation 1996e), at a then-assumed frequency of one in five years.

In addition to these BHBF releases that exceed the hydraulic capacity of Glen Canyon Powerplant, the *Operation of Glen Canyon Dam FEIS* identified the need for Beach/Habitat Maintenance Flow (BHMF) releases which do not exceed the hydraulic capacity of the powerplant. These flows were designed to prevent backwater habitat from filling with sediment and to reduce vegetation on camping beaches in years between BHBFs. BHBF and BHMF releases serve as a tool for maintaining a mass balance of sediment in Glen Canyon and Grand Canyon.

### **P-HR.1.2 Methodology**

The frequencies at which BHBF releases from Glen Canyon Dam would occur under the No Action Alternative and the action alternatives were estimated through the use of the Colorado River Simulation System (CRSS) and modeling as described in Section 4.2.3 of this Final EIS.

The model was configured to simulate BHBF releases by incorporating the BHBF hydrologic triggering criteria (contained in Section P-HR.1.3) into the Glen Canyon Dam operating rules. The model was also configured to make no more than one BHBF release in any given year.

### **P-HR.1.3 Existing Conditions**

Sediment along the Colorado River downstream of Glen Canyon Dam is an important and dynamic resource which affects fish and wildlife habitat along the river, creates camping beaches for recreation, and serves to protect cultural resources. Except for remnants of high river terraces deposited prior to the closure of Glen Canyon Dam, the now-limited sediment supply that exists along the river channel is affected by Glen Canyon Dam operations.

Since construction of Glen Canyon Dam, the measured suspended sediment load (sand, silt, and clay) at Phantom Ranch (in the Grand Canyon) averages 11 million tons per year. Most of this load comes from the Paria River and the Little Colorado River. Flash floods from other side canyons also contribute to the sediment supply (Reclamation 1995). The suspended sediment load is sporadic in occurrence, depending on Glen Canyon Dam releases and tributary inputs.

Beneficial sediment mobilization and deposition downstream of Glen Canyon Dam depends on the interaction of two occurrences for full effectiveness: the addition of sediment to the river corridor and BHBF releases. The higher energy of BHBF releases mobilizes suspended and riverbed-stored sediment and deposits it as beaches in beach and shoreline areas. Once a BHBF release has been made, additional sediment supply from tributary inflows is needed before subsequent BHBF releases are fully effective in promoting further beach and sandbar deposition along the river.

Subsequent to the 1996 ROD, specific operating criteria were developed which further refined conditions under which BHBFs would be made. The criteria provide that under either of the following two triggering conditions, BHBF releases may be made from Glen Canyon Dam:

- 1) if the January forecast for the January-July unregulated spring runoff into Lake Powell exceeds 13 maf (about 140 percent of normal) when January 1 content is greater than 21.5 maf; or
- 2) any time a Lake Powell inflow forecast would require a monthly powerplant release greater than 1.5 maf.

Research concerning the relationships among dam operations, downstream sediment inflow, river channel and sandbar characteristics, and particle-size distribution along the river is ongoing.

#### **P-HR.1.4 Modeling Results**

The effects of the No Action Alternative and the action alternatives on BHBF releases from Glen Canyon Dam were analyzed in terms of the yearly frequency at which BHBF releases could be made. Specifically, the frequency was indicated by the occurrence of one or both of the triggering criteria cited above, during a calendar year. The following discussion presents probability of occurrence under the No Action Alternative, and then compares the probability of BHBF releases under each action alternative to the No Action Alternative.

Figure P-HR-5 shows the probabilities that BHBF releases could be made under the No Action Alternative and the action alternatives. This figure shows that in the initial two years of the modeling period (2008 and 2009), under the assumed hydrologic sequences and reservoir starting conditions, there is a zero probability of BHBF releases. From 2010 through about 2016, the probability of BHBF releases under the No Action Alternative increases each year to about ten percent. Between 2017 and 2039, the probability under the No Action Alternative varies between nine percent to 12 percent. Between 2040 and 2060, the probability under the No Action Alternative increases slightly and varies between nine percent to 15 percent.

The probability of BHBF releases under the Basin States, Conservation Before Shortage, and Water Supply Alternatives, and the Preferred Alternative, are similar to those observed under the No Action Alternative and differ no more than one percentage point in any one year. The exception to this occurs in 2042 when the probability under all of these alternatives is three percent lower than that of the No Action Alternative. This occurrence is the result of the relatively lower reservoir conditions in 2026 that occur under these alternatives.

The Reservoir Storage Alternative generally provides a higher probability of BHBF releases than the No Action Alternative and the other action alternatives between 2011 through 2045. This occurs due to the generally higher reservoir elevations that are provided under the Reservoir Storage Alternative. Because these elevations are higher than the first part of the BHBF release triggering criteria, The Reservoir Storage Alternative provides slightly higher probability for BHBF releases.

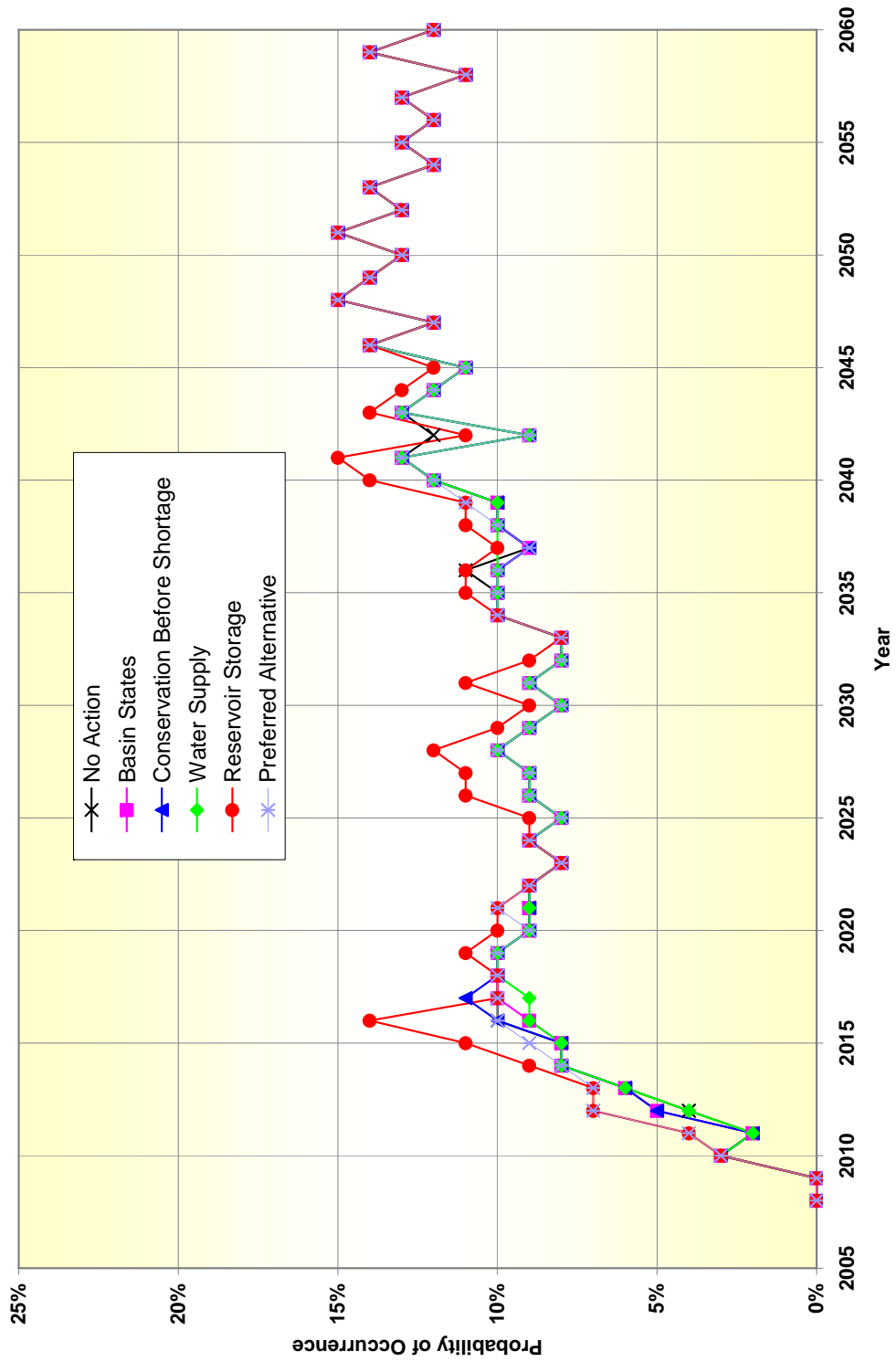
The probability of BHBF releases under the No Action Alternative and the action alternatives all converge in about 2046 and remain the same through 2060.

Table P-HR-1 summarizes the BHBF release probabilities during the interim period (2008 through 2026) and the subsequent period to 2060, based on the data plotted in Figure P-HR-5. The table reflects the higher average probability during the post-interim period than during the interim period due to the low reservoir starting conditions in 2008.

Table P-HR-1  
Average Probability of BHBF Releases from Glen Canyon Dam

Period	Percent of Time That Conditions Needed for BHBF Releases Would Occur at Lake Powell					
	No Action	Basin States	Conservation Before Shortage	Water Supply	Reservoir Storage	Preferred Alternative
2008 - 2026	6.9	6.9	7.1	6.8	8.0	7.4
2027 - 2060	11.5	11.4	11.4	11.4	12.1	11.4

Figure P-HR-5  
Glen Canyon Dam Releases  
Probability of Occurrence of BHBF Releases



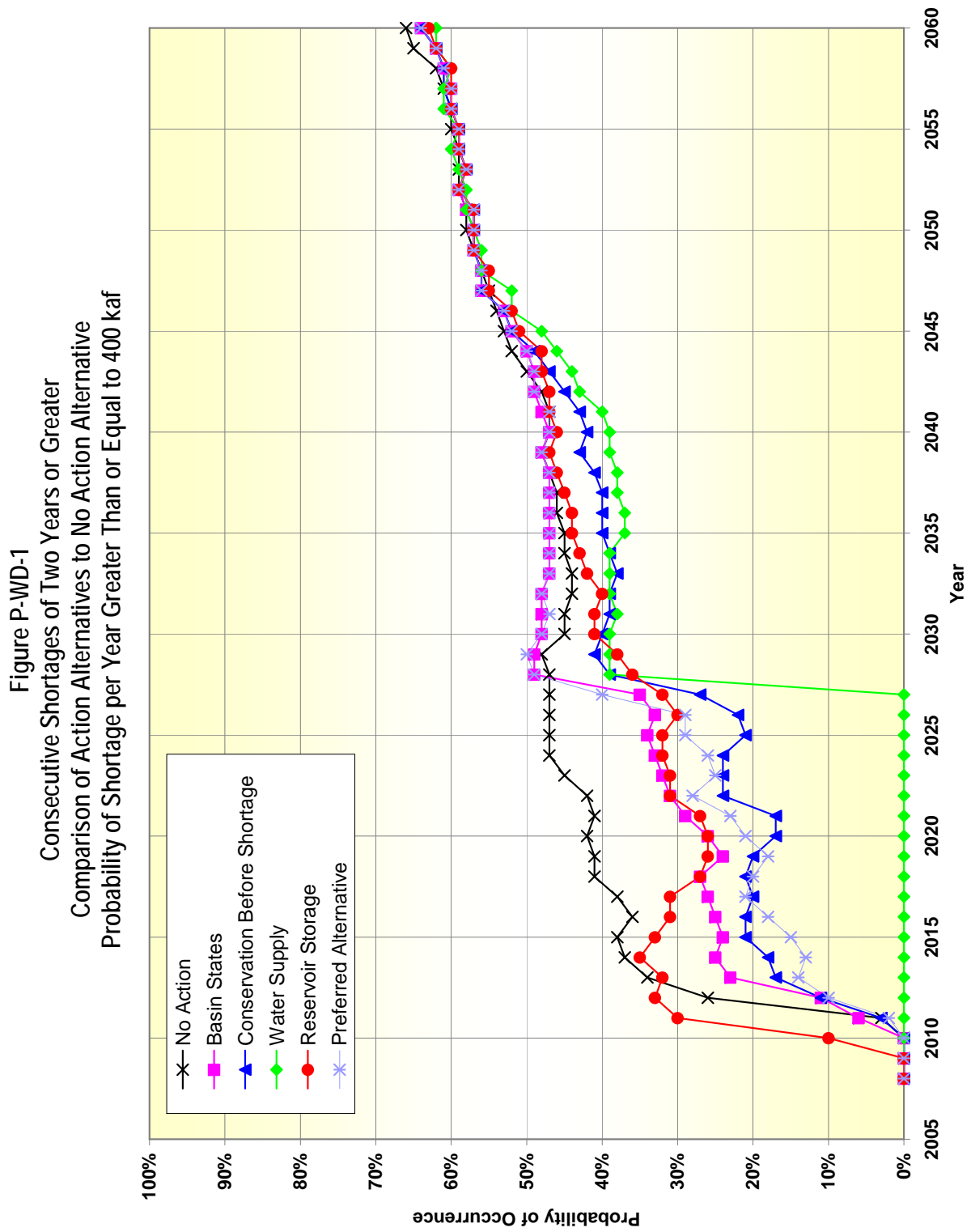
## Water Deliveries Information

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This section contains additional information used in the analysis of water deliveries (Section 4.4). Specifically, this information is used in the analysis of multi-year shortages. In this EIS, occurrences of shortages in consecutive years are termed multi-year shortages. The information consists of a series of figures that provide comparisons of the probability of multi-year shortages with volumes equal to or greater than 400 kafy, 500 kafy, 600 kafy, and 1,000 kafy. Consecutive year shortages with durations of two or more years, five or more years, ten or more years, and 15 or more years were considered for these shortage analyses.







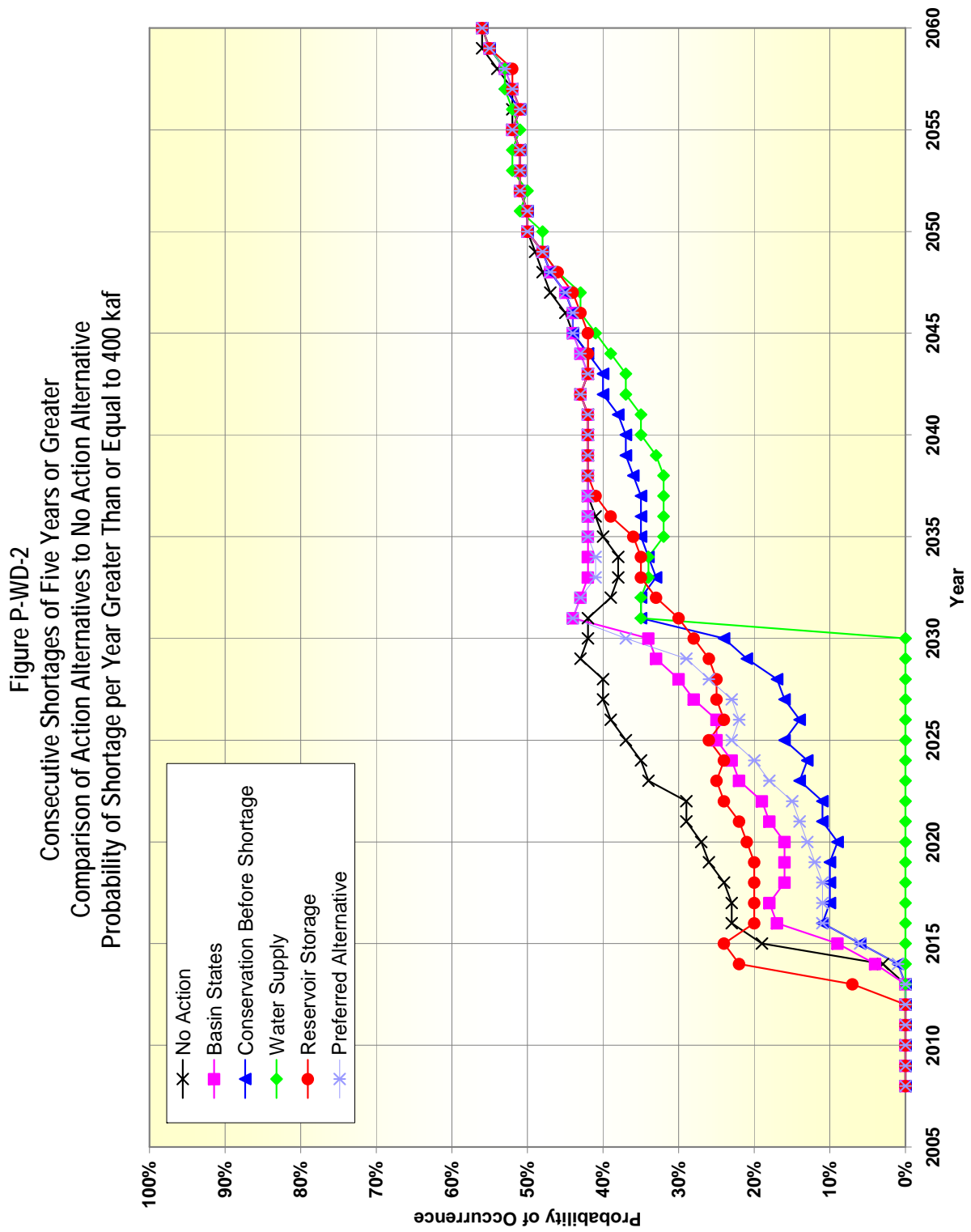


Figure P-WD-3  
 Consecutive Shortages of Ten Years or Greater  
 Comparison of Action Alternatives to No Action Alternative  
 Probability of Shortage per Year Greater Than or Equal to 400 kaf

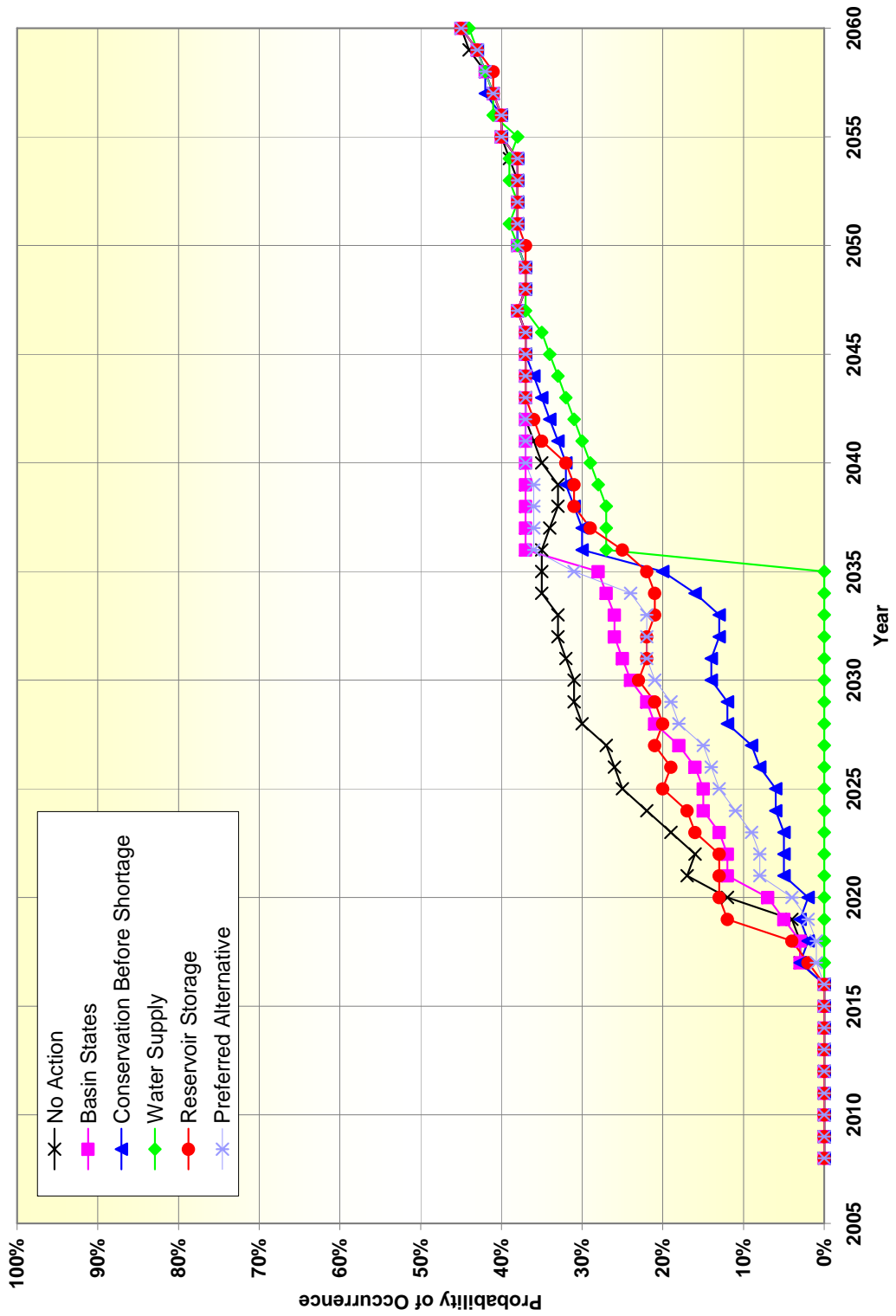


Figure P-WD-4  
 Consecutive Shortages of 15 Years or Greater  
 Comparison of Action Alternatives to No Action Alternative  
 Probability of Shortage per Year Greater Than or Equal to 400 kaf

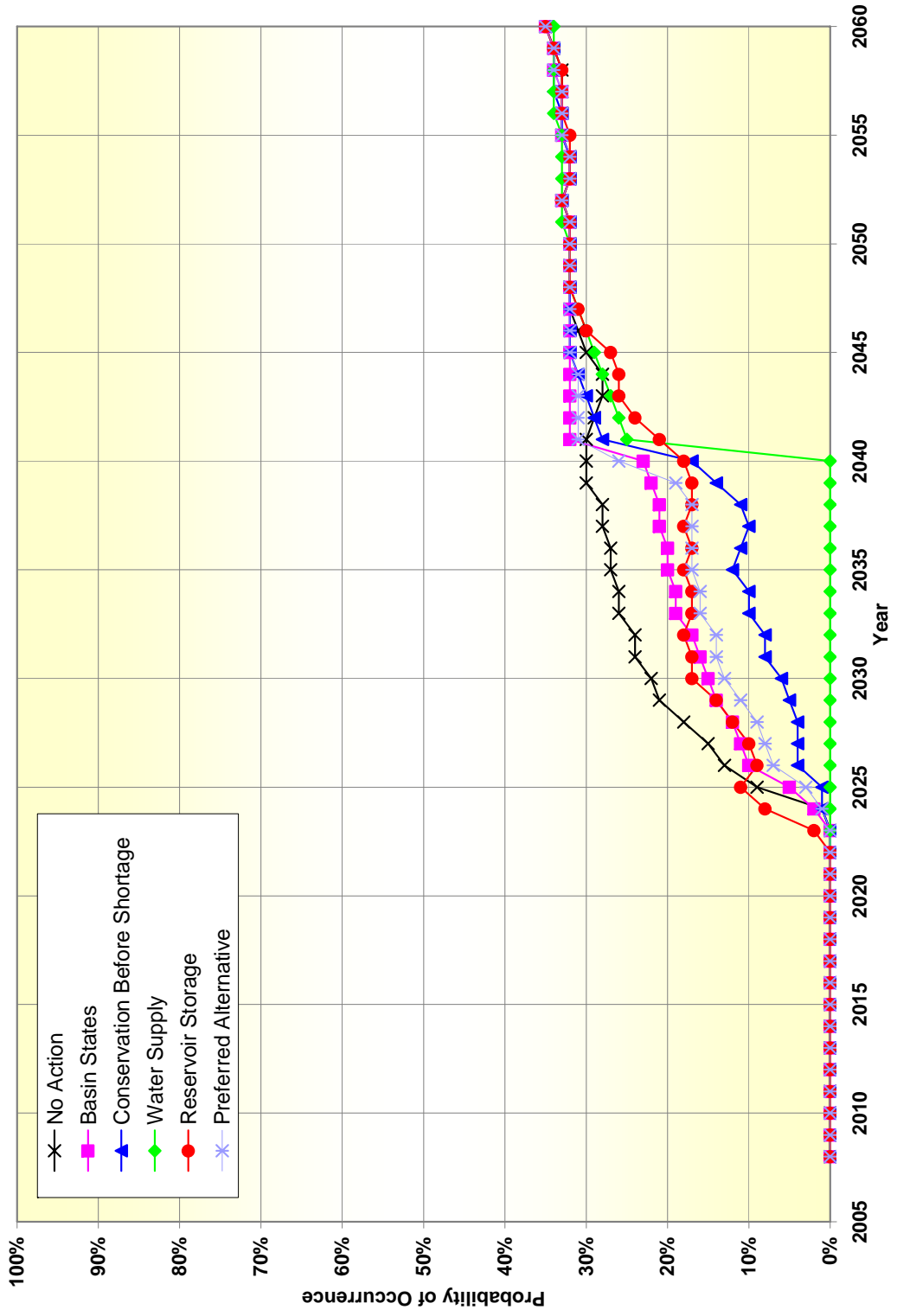


Figure P-WD-5  
 Consecutive Shortages of Two Years or Greater  
 Comparison of Action Alternatives to No Action Alternative  
 Probability of Shortage per Year Greater Than or Equal to 500 kaf

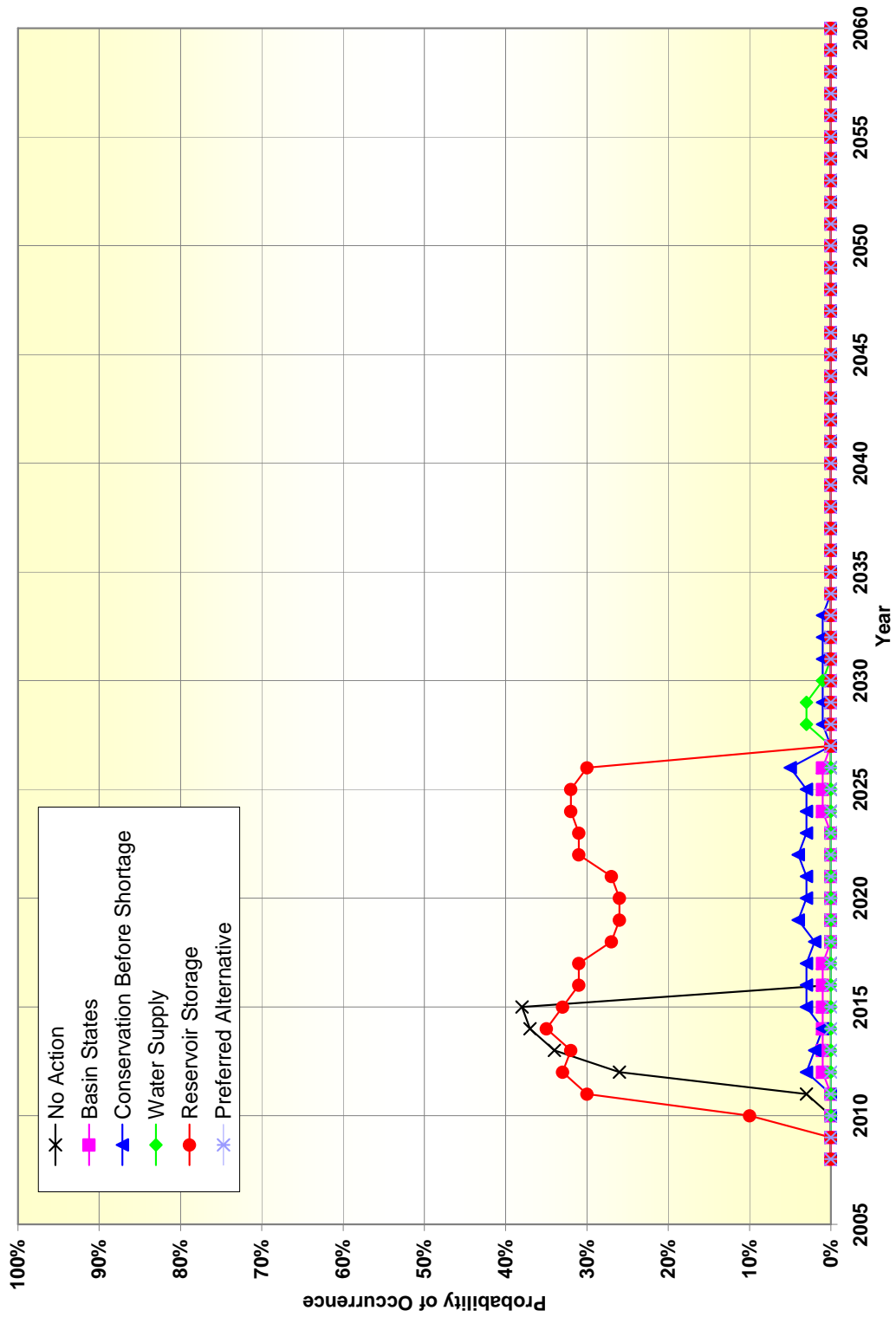
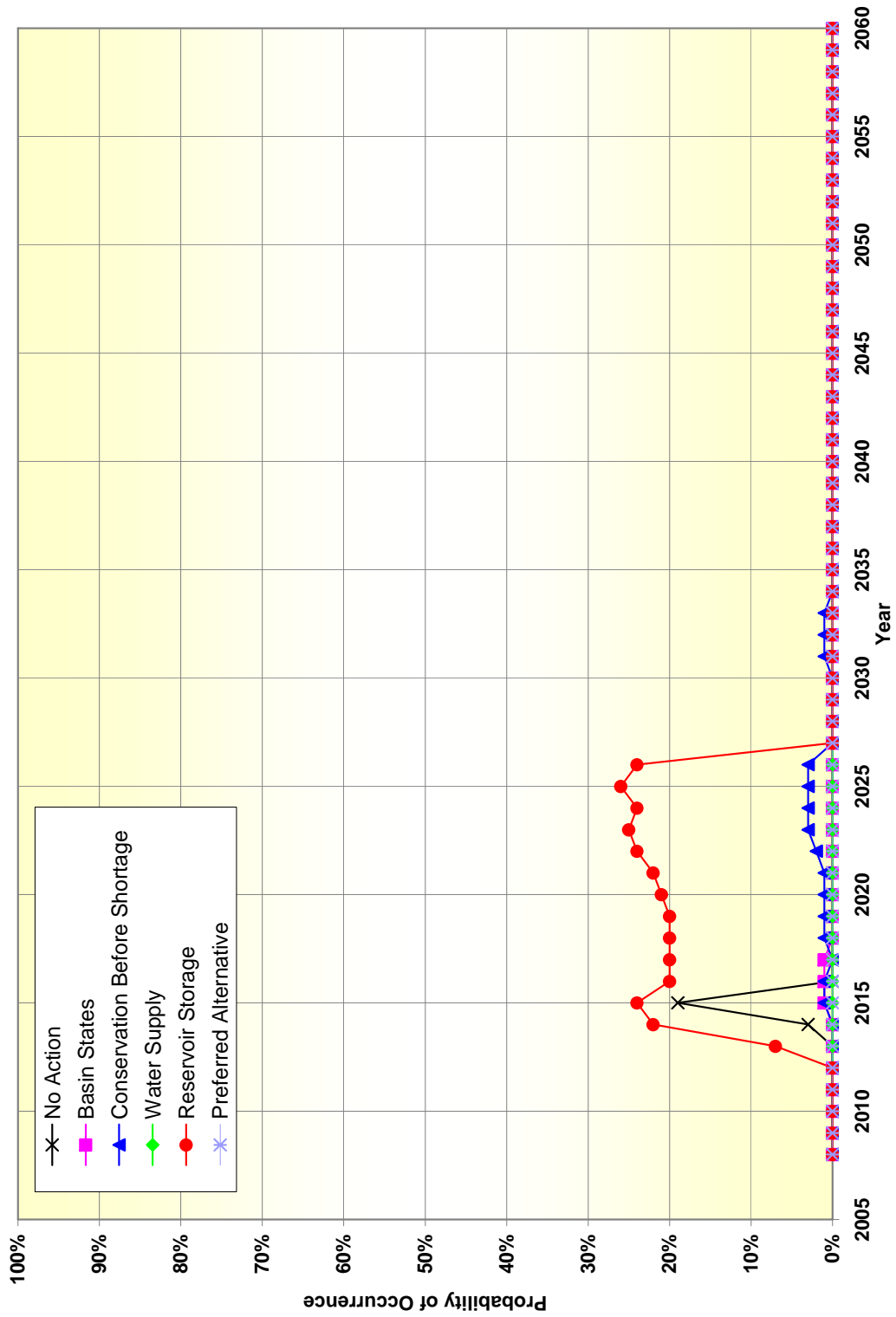


Figure P-WD-6  
 Consecutive Shortages of Five Years or Greater  
 Comparison of Action Alternatives to No Action Alternative  
 Probability of Shortage per Year Greater Than or Equal to 500 kaf



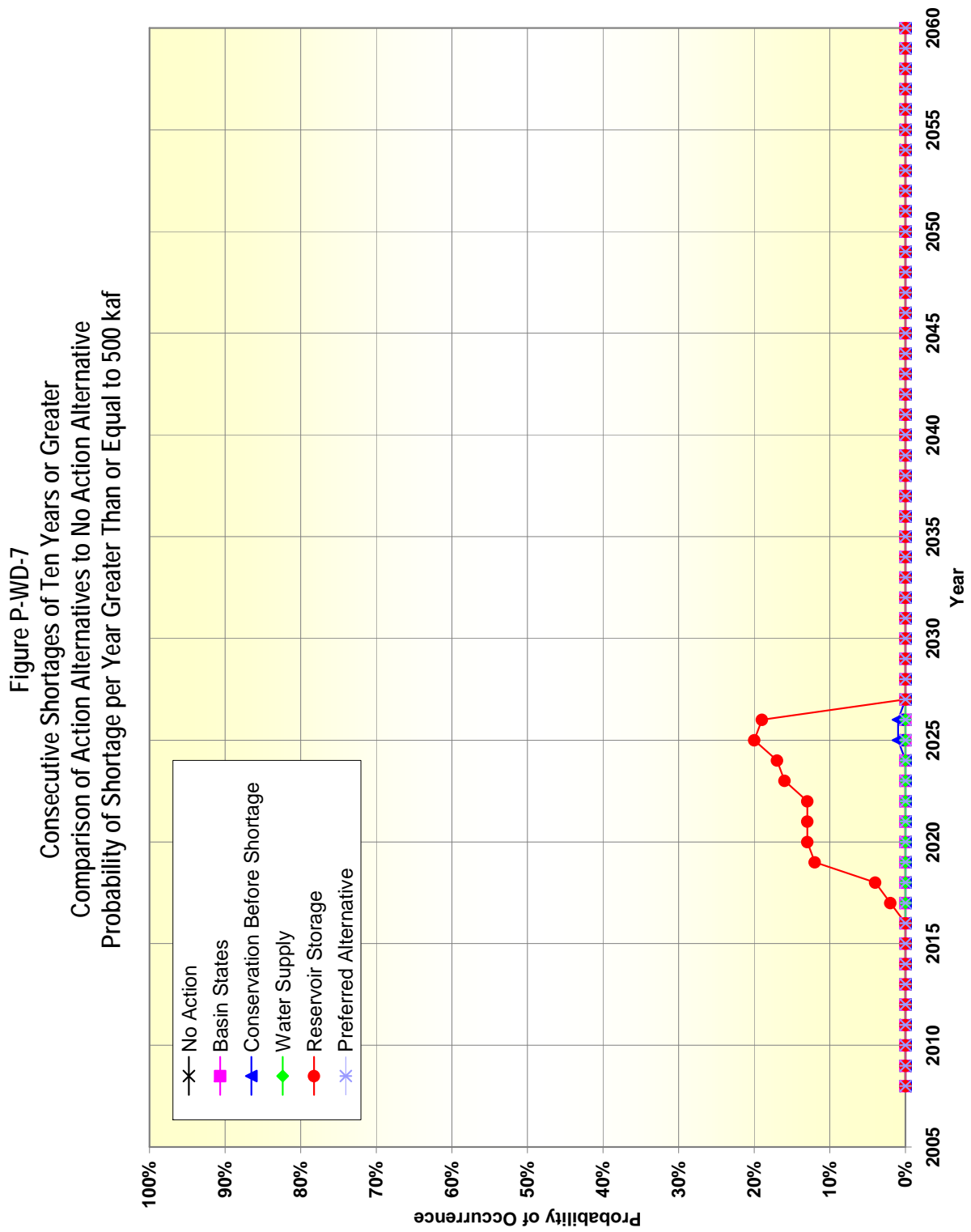
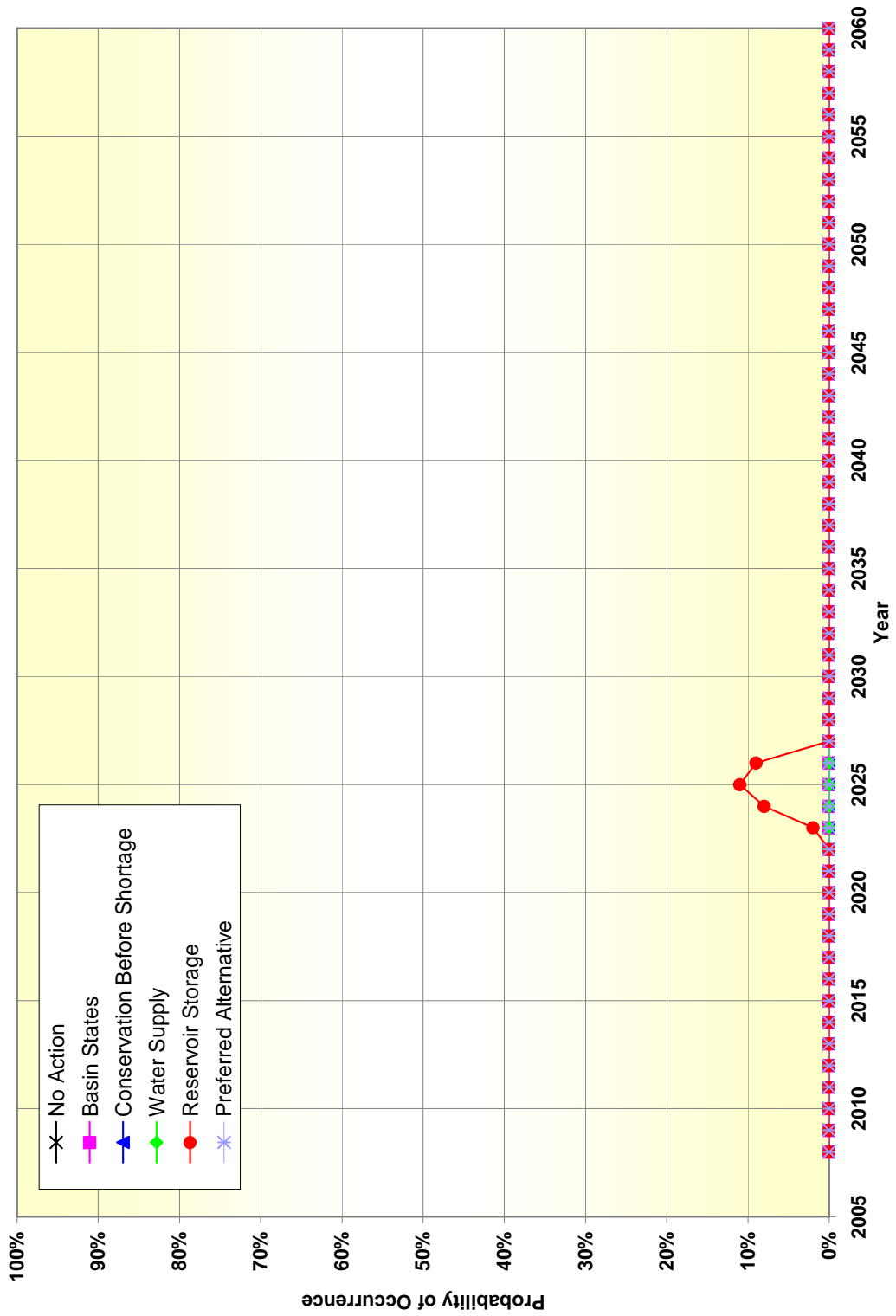
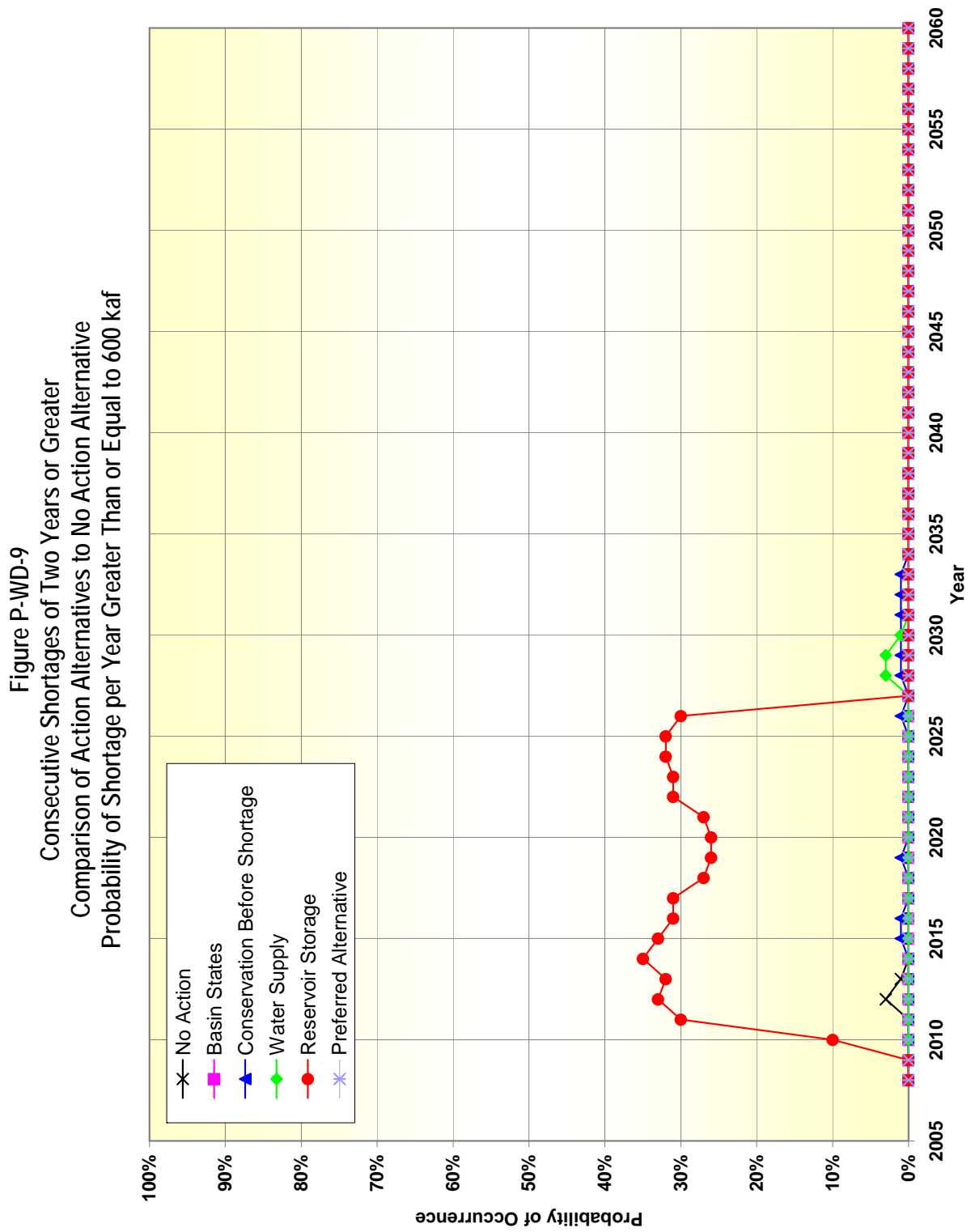
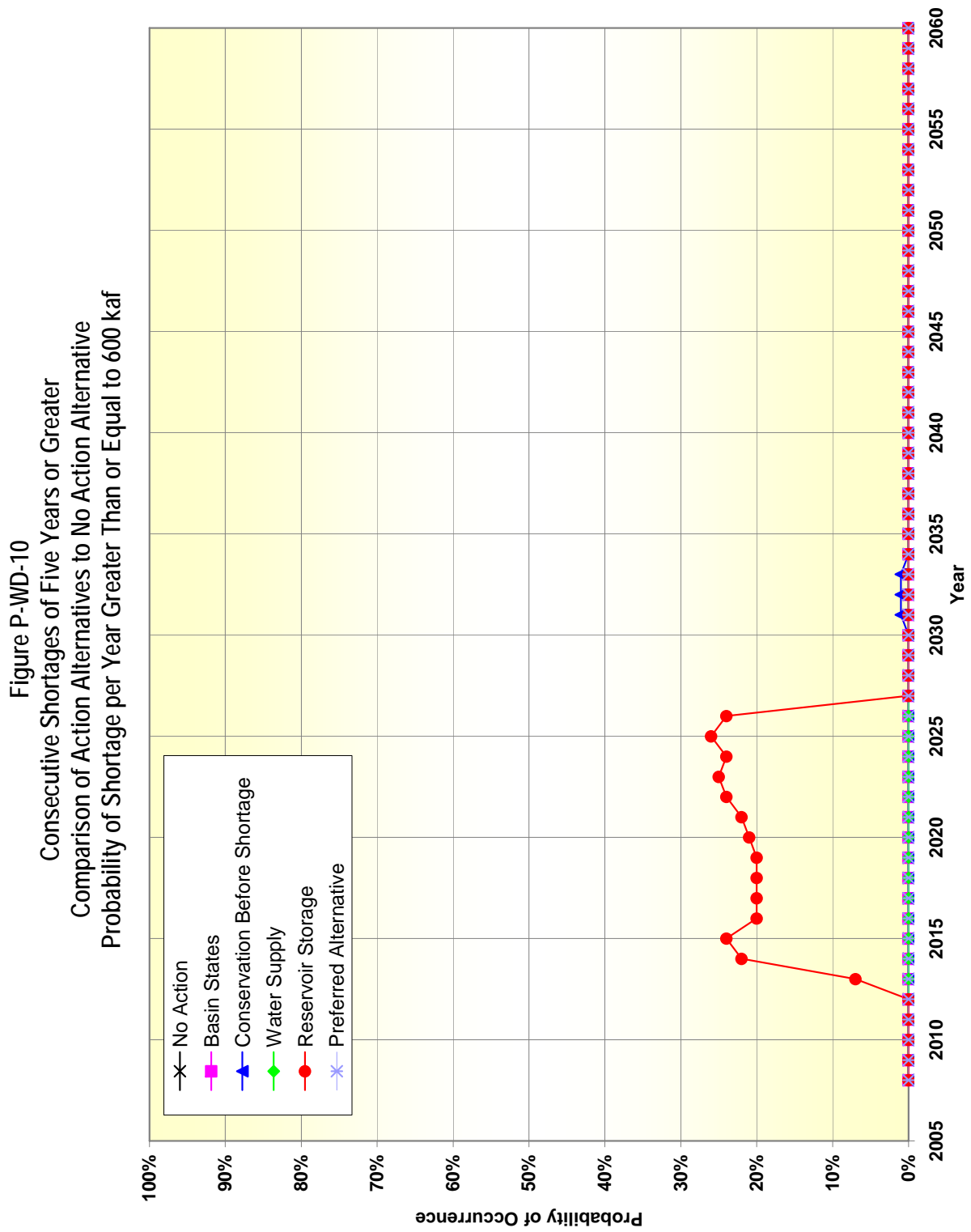


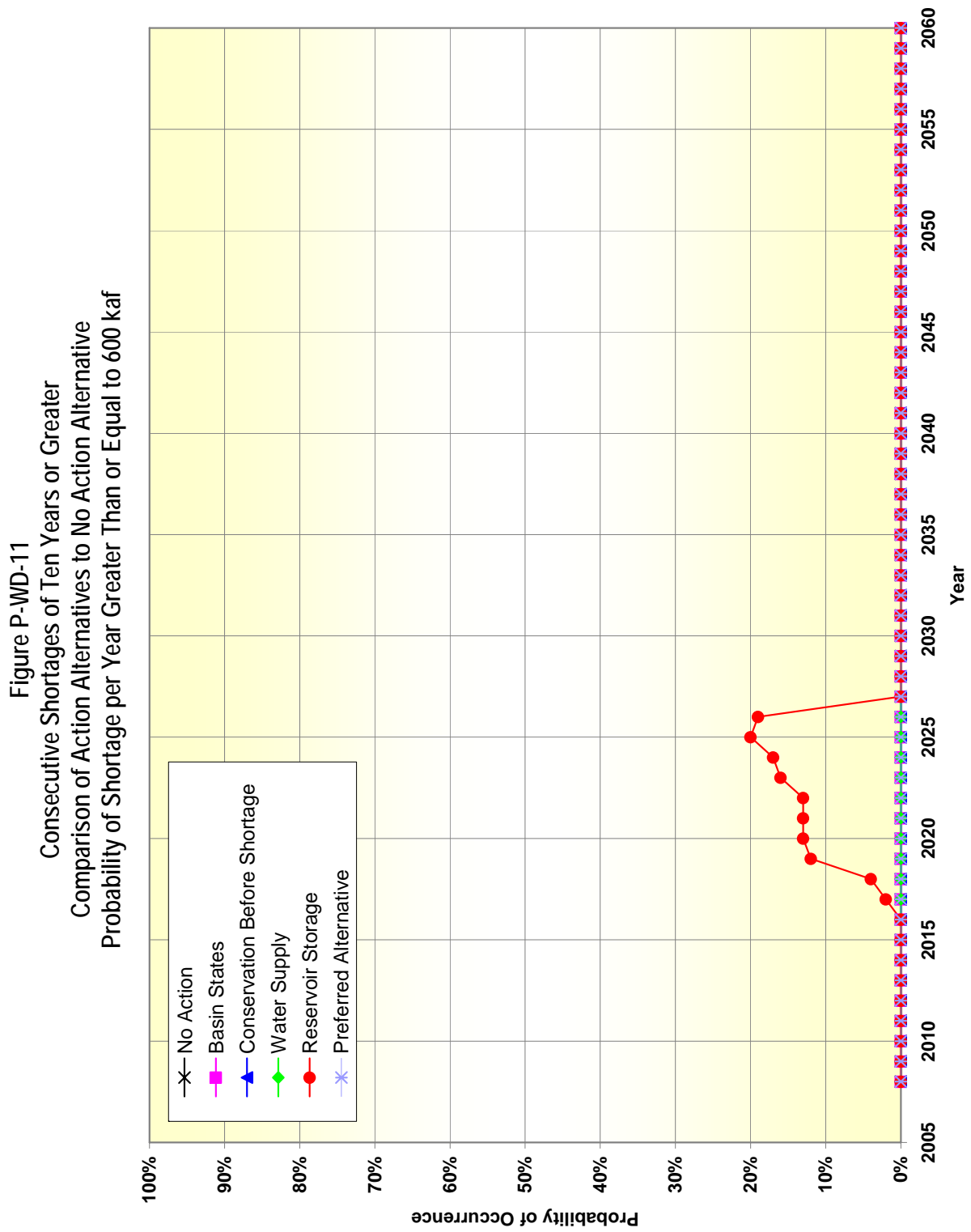
Figure P-WD-8  
 Consecutive Shortages of 15 Years or Greater  
 Comparison of Action Alternatives to No Action Alternative  
 Probability of Shortage per Year Greater Than or Equal to 500 kaf











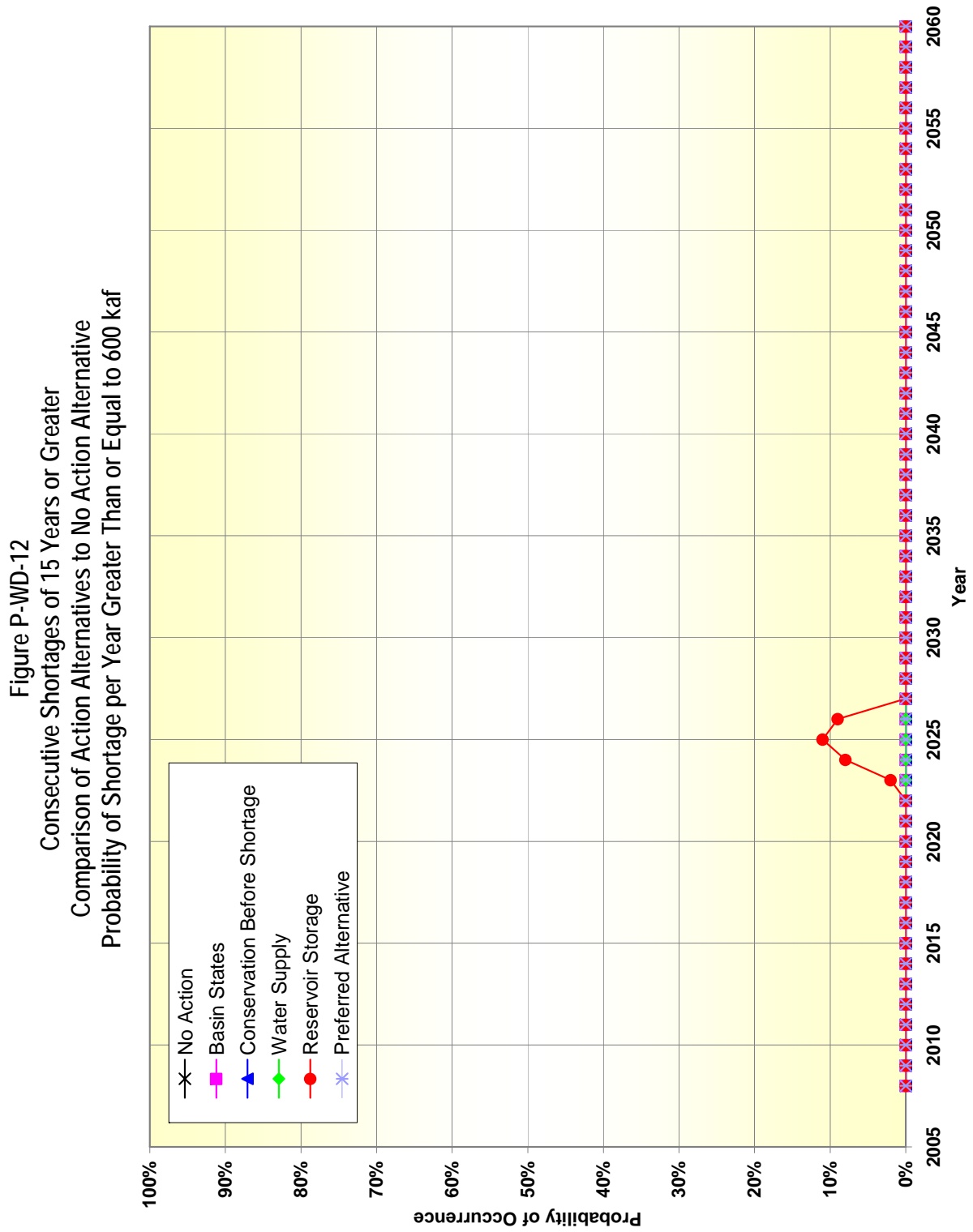
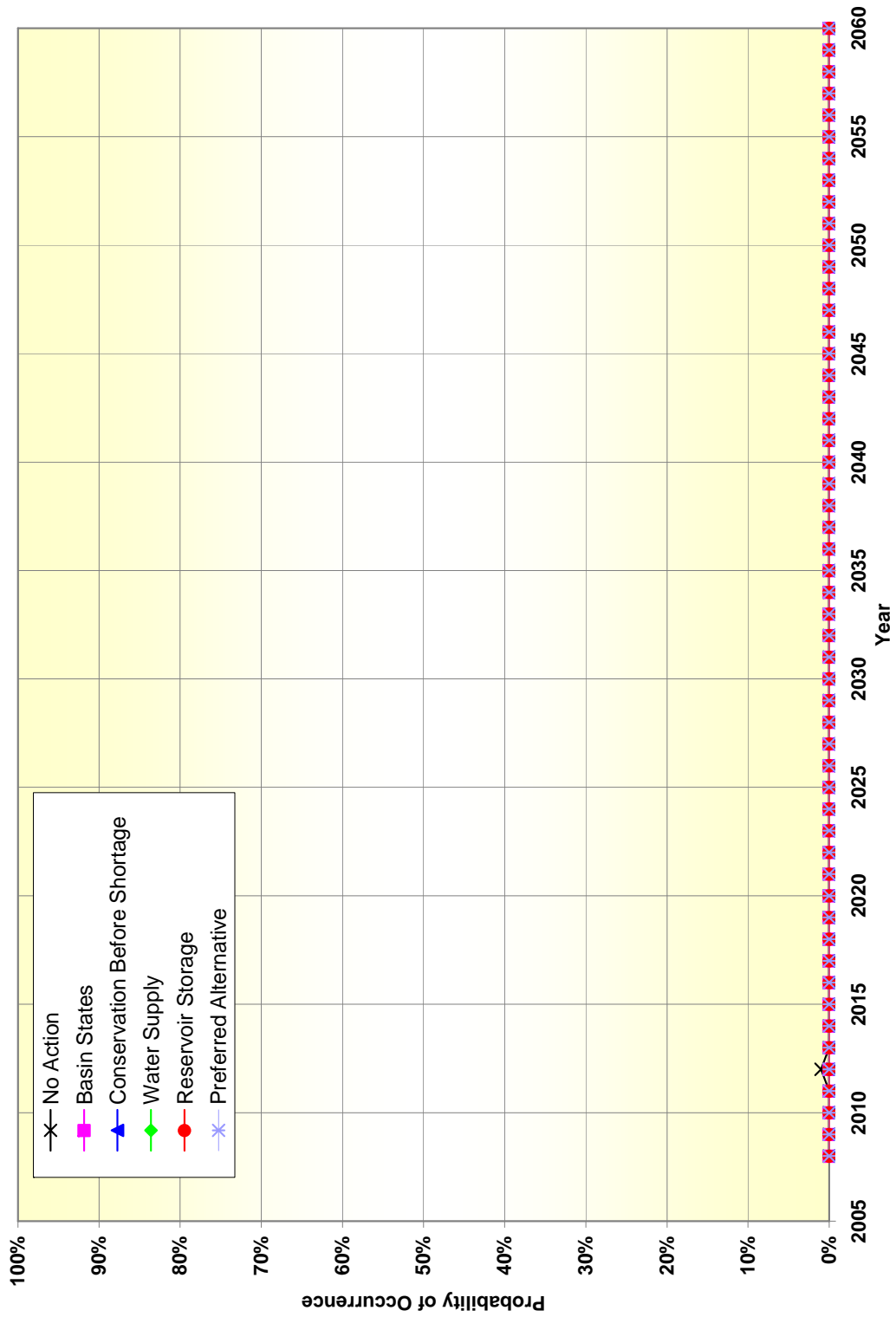


Figure P-WD-13  
 Consecutive Shortages of Two Years or Greater  
 Comparison of Action Alternatives to No Action Alternative  
 Probability of Shortage per Year Greater Than or Equal to 1,000 kaf



**Table P-WD-1**  
**Consecutive Shortages With Durations of Two or More Years, Five or More Years, Ten or More Years, and 15 or More Years**  
**Comparison of Action Alternatives to No Action Alternative**  
**Probability of Shortage per Year Greater Than or Equal to 400 kaf**

	No Action	Basin States	Conservation Before Shortage	Water Supply	Reservoir Storage	Preferred Alternative
<b>Probability of Annual Shortage Volume Greater Than or Equal to 400 kaf Occurring in Two or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	10.0	0.0
2016	36.0	25.0	21.0	0.0	31.0	18.0
2020	42.0	26.0	17.0	0.0	26.0	21.0
2026	47.0	33.0	22.0	0.0	30.0	29.0
2030	45.0	48.0	40.0	39.0	41.0	48.0
2035	45.0	47.0	40.0	37.0	44.0	47.0
2040	47.0	47.0	42.0	39.0	46.0	47.0
2050	58.0	57.0	57.0	57.0	57.0	57.0
2060	66.0	64.0	64.0	62.0	63.0	64.0
<b>Probability of Annual Shortage Volume Greater Than or Equal to 400 kaf Occurring in Five or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0
2016	23.0	17.0	11.0	0.0	20.0	11.0
2020	27.0	16.0	9.0	0.0	21.0	13.0
2026	39.0	25.0	14.0	0.0	24.0	22.0
2030	42.0	34.0	24.0	0.0	28.0	37.0
2035	40.0	42.0	35.0	32.0	36.0	42.0
2040	42.0	42.0	37.0	35.0	42.0	42.0
2050	50.0	50.0	50.0	48.0	50.0	50.0
2060	56.0	56.0	56.0	56.0	56.0	56.0
<b>Probability of Annual Shortage Volume Greater Than or Equal to 400 kaf Occurring in Ten or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0	0.0	0.0
2020	12.0	7.0	2.0	0.0	13.0	4.0
2026	26.0	16.0	8.0	0.0	19.0	14.0
2030	31.0	24.0	14.0	0.0	23.0	21.0
2035	35.0	28.0	20.0	0.0	22.0	31.0
2040	35.0	37.0	32.0	29.0	32.0	37.0
2050	38.0	38.0	38.0	38.0	37.0	38.0
2060	45.0	45.0	45.0	44.0	45.0	45.0
<b>Probability of Annual Shortage Volume Greater Than or Equal to 400 kaf Occurring in 15 or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0	0.0	0.0
2020	0.0	0.0	0.0	0.0	0.0	0.0
2026	13.0	10.0	4.0	0.0	9.0	7.0
2030	22.0	15.0	6.0	0.0	17.0	13.0
2035	27.0	20.0	12.0	0.0	18.0	17.0
2040	30.0	23.0	17.0	0.0	18.0	26.0
2050	32.0	32.0	32.0	32.0	32.0	32.0
2060	35.0	35.0	35.0	34.0	35.0	35.0

Table P-WD-2  
 Consecutive Shortages With Durations of Two or More Years, Five or More Years, Ten or More Years, and 15 or More Years  
 Comparison of Action Alternatives to No Action Alternative  
 Probability of Shortage per Year Greater Than or Equal to 500 kaf

	No Action	Basin States	Conservation Before Shortage	Water Supply	Reservoir Storage	Preferred Alternative
<b>Probability of Annual Shortage Volume Greater Than or Equal to 500 kaf Occurring in Two or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	10.0	0.0
2016	0.0	1.0	3.0	0.0	31.0	0.0
2020	0.0	0.0	3.0	0.0	26.0	0.0
2026	0.0	1.0	5.0	0.0	30.0	0.0
2030	0.0	0.0	1.0	1.0	0.0	0.0
2035	0.0	0.0	0.0	0.0	0.0	0.0
2040	0.0	0.0	0.0	0.0	0.0	0.0
2050	0.0	0.0	0.0	0.0	0.0	0.0
2060	0.0	0.0	0.0	0.0	0.0	0.0
<b>Probability of Annual Shortage Volume Greater Than or Equal to 500 kaf Occurring in Five or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0
2016	0.0	1.0	1.0	0.0	20.0	0.0
2020	0.0	0.0	1.0	0.0	21.0	0.0
2026	0.0	0.0	3.0	0.0	24.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0
2035	0.0	0.0	0.0	0.0	0.0	0.0
2040	0.0	0.0	0.0	0.0	0.0	0.0
2050	0.0	0.0	0.0	0.0	0.0	0.0
2060	0.0	0.0	0.0	0.0	0.0	0.0
<b>Probability of Annual Shortage Volume Greater Than or Equal to 500 kaf Occurring in Ten or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0	0.0	0.0
2020	0.0	0.0	0.0	0.0	13.0	0.0
2026	0.0	0.0	1.0	0.0	19.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0
2035	0.0	0.0	0.0	0.0	0.0	0.0
2040	0.0	0.0	0.0	0.0	0.0	0.0
2050	0.0	0.0	0.0	0.0	0.0	0.0
2060	0.0	0.0	0.0	0.0	0.0	0.0
<b>Probability of Annual Shortage Volume Greater Than or Equal to 500 kaf Occurring in 15 or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0	0.0	0.0
2020	0.0	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	9.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0
2035	0.0	0.0	0.0	0.0	0.0	0.0
2040	0.0	0.0	0.0	0.0	0.0	0.0
2050	0.0	0.0	0.0	0.0	0.0	0.0
2060	0.0	0.0	0.0	0.0	0.0	0.0

**Table P-WD-3**  
**Consecutive Shortages With Durations of Two Or More Years, Five or More Years, Ten or More Years, and 15 or More Years**  
**Comparison of Action Alternatives to No Action Alternative**  
**Probability of Shortage per Year Greater Than or Equal to 600 kaf**

	No Action	Basin States	Conservation Before Shortage	Water Supply	Reservoir Storage	Preferred Alternative
<b>Probability of Annual Shortage Volume Greater Than or Equal to 600 kaf Occurring in Two or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	10.0	0.0
2016	0.0	0.0	1.0	0.0	31.0	0.0
2020	0.0	0.0	0.0	0.0	26.0	0.0
2026	0.0	0.0	1.0	0.0	30.0	0.0
2030	0.0	0.0	1.0	1.0	0.0	0.0
2035	0.0	0.0	0.0	0.0	0.0	0.0
2040	0.0	0.0	0.0	0.0	0.0	0.0
2050	0.0	0.0	0.0	0.0	0.0	0.0
2060	0.0	0.0	0.0	0.0	0.0	0.0
<b>Probability of Annual Shortage Volume Greater Than or Equal to 600 kaf Occurring in Five or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0	20.0	0.0
2020	0.0	0.0	0.0	0.0	21.0	0.0
2026	0.0	0.0	0.0	0.0	24.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0
2035	0.0	0.0	0.0	0.0	0.0	0.0
2040	0.0	0.0	0.0	0.0	0.0	0.0
2050	0.0	0.0	0.0	0.0	0.0	0.0
2060	0.0	0.0	0.0	0.0	0.0	0.0
<b>Probability of Annual Shortage Volume Greater Than or Equal to 600 kaf Occurring in Ten or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0	0.0	0.0
2020	0.0	0.0	0.0	0.0	13.0	0.0
2026	0.0	0.0	0.0	0.0	19.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0
2035	0.0	0.0	0.0	0.0	0.0	0.0
2040	0.0	0.0	0.0	0.0	0.0	0.0
2050	0.0	0.0	0.0	0.0	0.0	0.0
2060	0.0	0.0	0.0	0.0	0.0	0.0
<b>Probability of Annual Shortage Volume Greater Than or Equal to 600 kaf Occurring in 15 or More Consecutive Years (percent)</b>						
2008	0.0	0.0	0.0	0.0	0.0	0.0
2010	0.0	0.0	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0	0.0	0.0
2020	0.0	0.0	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0	9.0	0.0
2030	0.0	0.0	0.0	0.0	0.0	0.0
2035	0.0	0.0	0.0	0.0	0.0	0.0
2040	0.0	0.0	0.0	0.0	0.0	0.0
2050	0.0	0.0	0.0	0.0	0.0	0.0
2060	0.0	0.0	0.0	0.0	0.0	0.0



## **Water Quality and Air Quality Information**

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This section contains additional information used in the water quality and air quality analyses (Section 4.5 and Section 4.6 of the EIS, respectively). This information consists of a series of figures that provide comparisons of flow-weighted annual average salinity concentrations under the modeled action alternatives to those under the modeled No Action Alternative. Additional figures that compare Lake Powell and Lake Mead elevations during different months (End-of-October and End-of-March elevations) are also included in this section.



Figure P-WAQ-1  
 Colorado River Salinity Downstream of Hoover Dam  
 Comparison of Action Alternatives to No Action Alternative  
 Flow-weighted Annual Average Salinity Concentrations

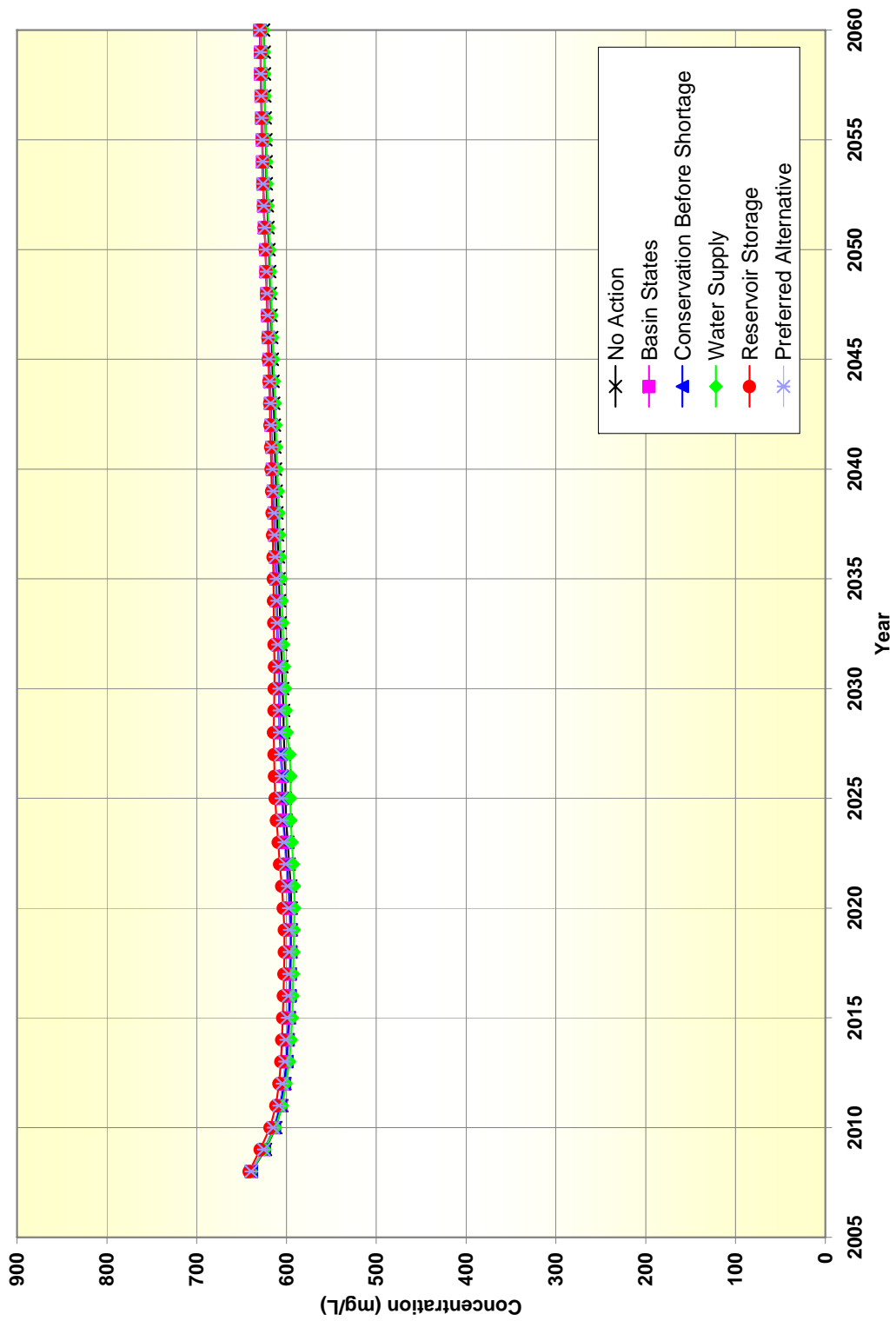


Figure P-WAQ-2  
Colorado River Salinity Downstream of Parker Dam  
Comparison of Action Alternatives to No Action Alternative  
Flow-weighted Annual Average Salinity Concentrations

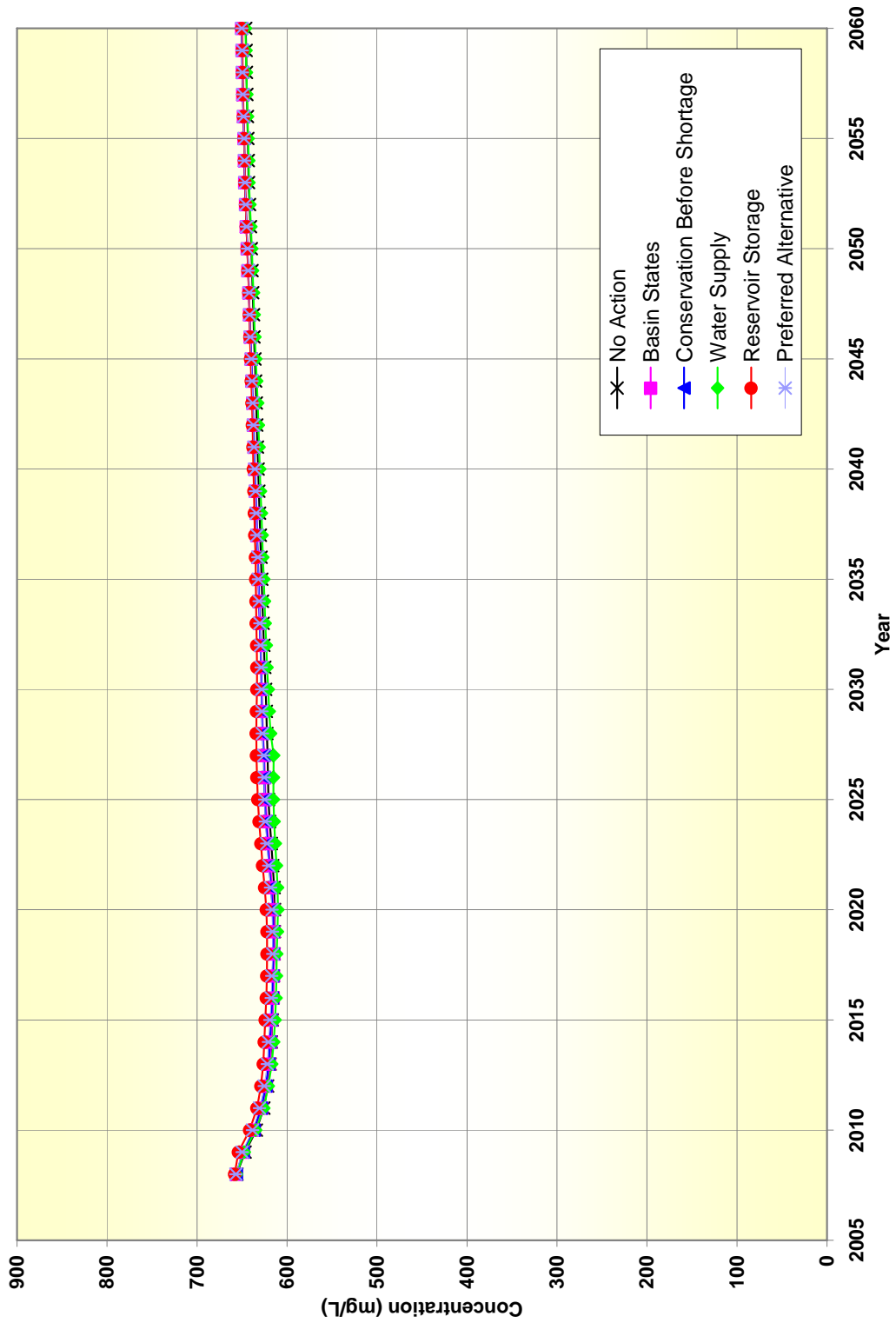


Figure P-WAQ-3  
 Colorado River Salinity Upstream of Imperial Dam  
 Comparison of Action Alternatives to No Action Alternatives  
 Flow-weighted Annual Average Salinity Concentrations

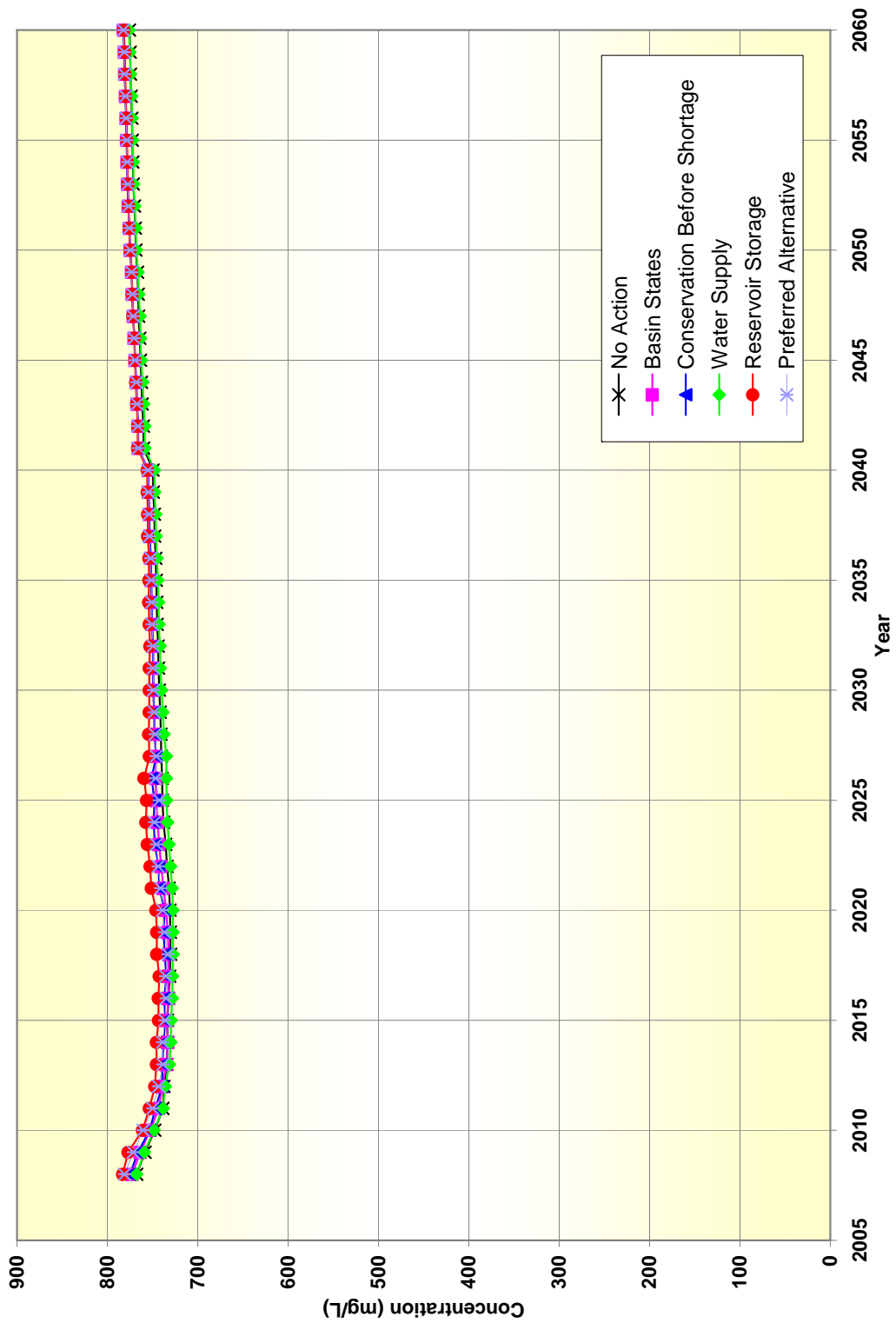


Figure P-WAQ-4  
 Lake Powell End-of-October Elevations  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

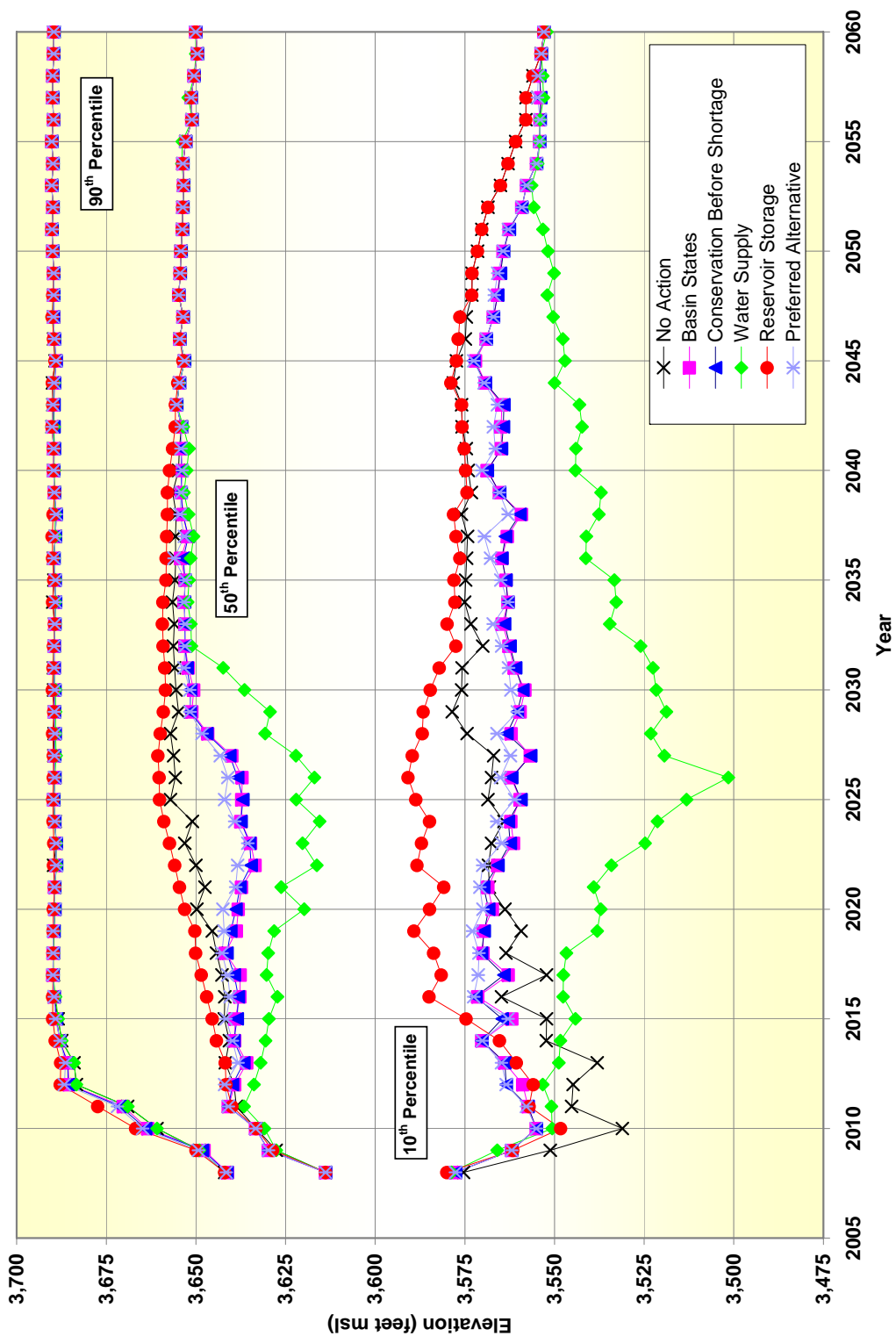


Figure P-WAQ-5  
 Lake Mead End-of-October Elevations  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

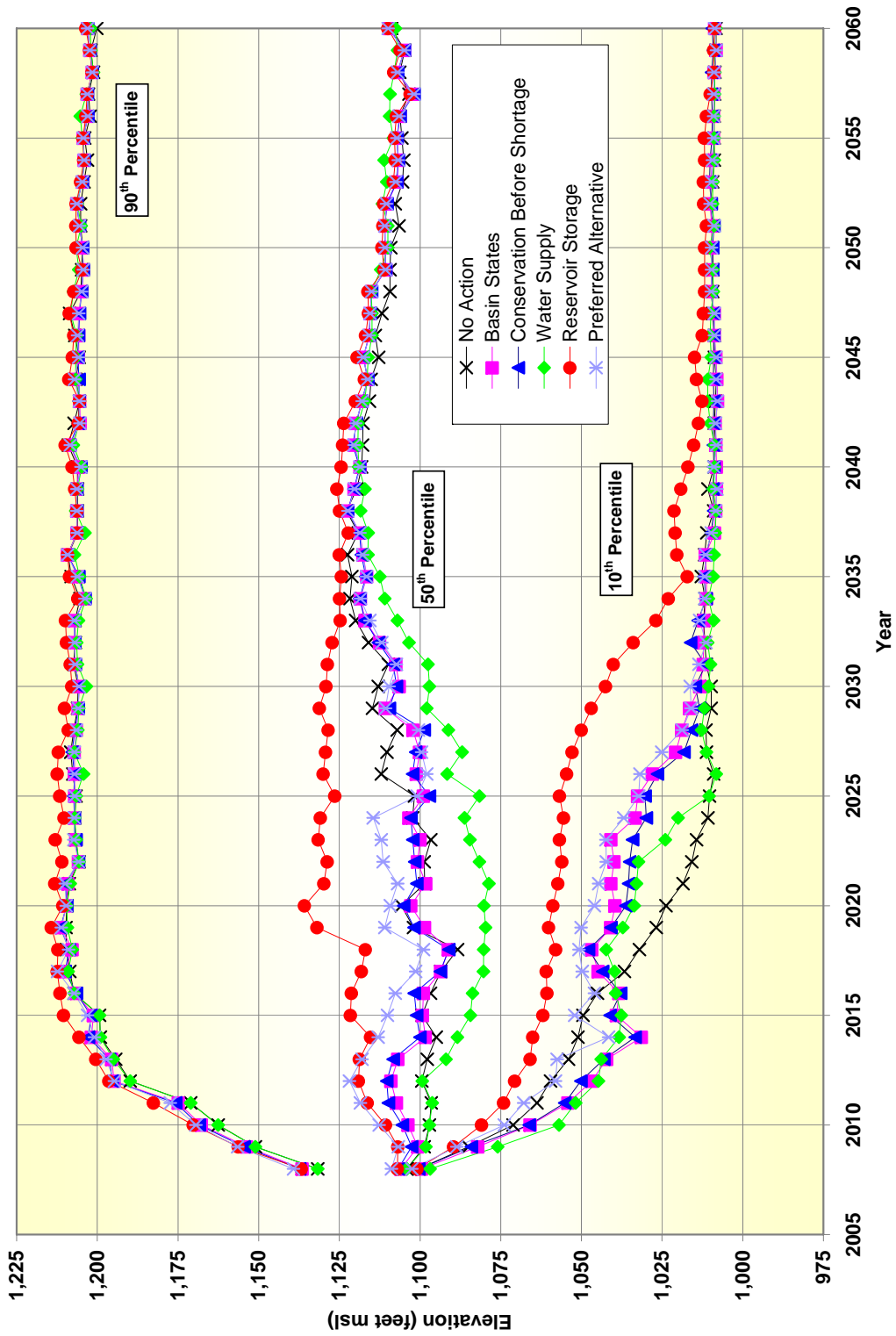
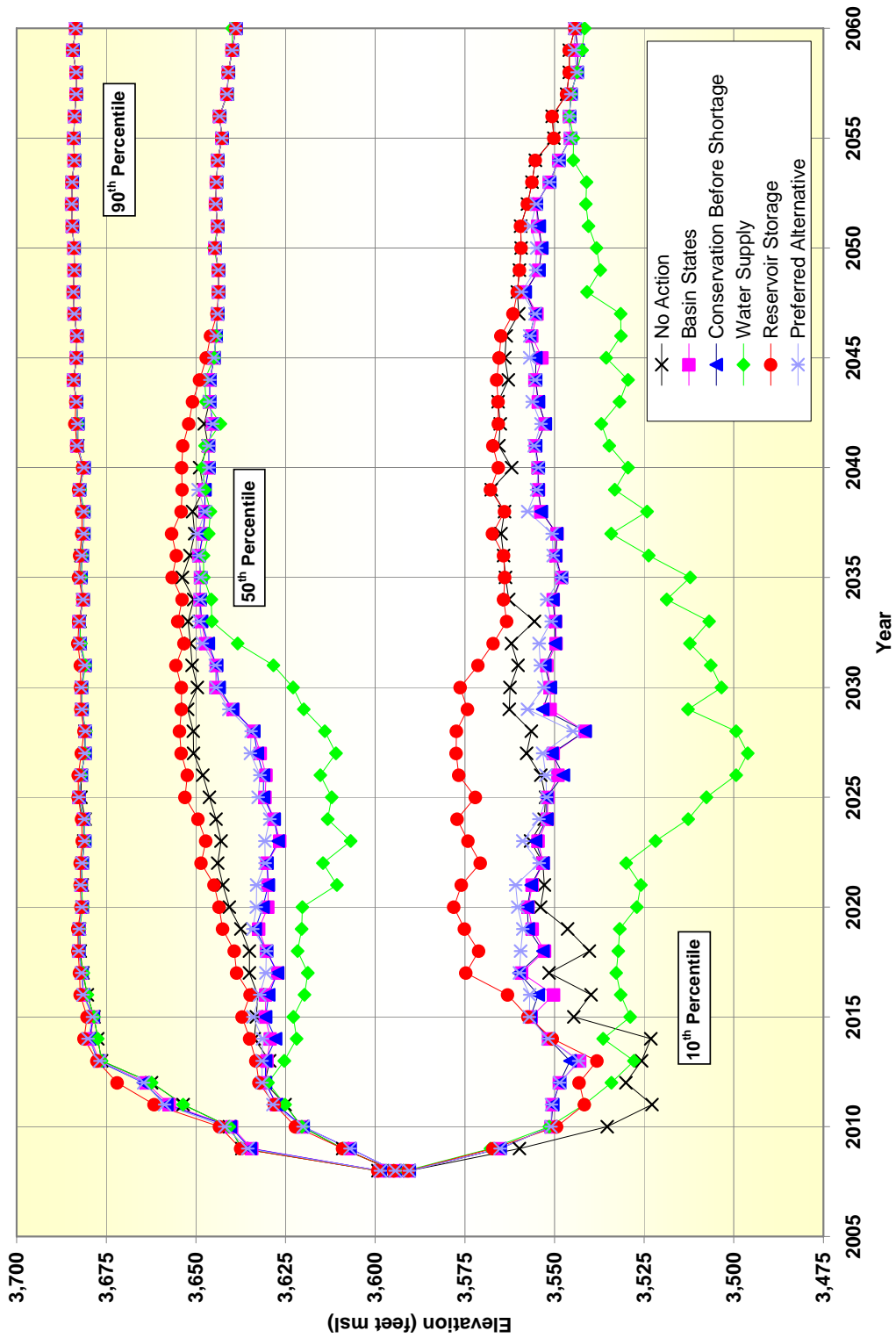


Figure P-WAQ-6  
Lake Powell End-of-March Elevations  
Comparison of Action Alternatives to No Action Alternative  
90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values





## **Biological Resources and Cultural Resources Information**

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This section contains additional information used in the biological and cultural resources impact analyses (Section 4.8 and Section 4.9 of the EIS, respectively). The information consists of a series of graphs and tables. The initial group of graphs provides comparisons of Lake Powell and Lake Mead elevations under the modeled action alternatives to those under the modeled No Action Alternative. These graphs compare Lake Powell end-of-month elevations for the months of July and September, and Lake Mead end-of-month elevations for the months of March, July, and September under each alternative. The second group of graphs provide a comparison of monthly release volumes (January through December) from Glen Canyon Dam, Hoover Dam, Davis Dam, and Parker Dam. The next graph provides a comparison of the probability of occurrence for excess flows downstream of Morelos Diversion Dam under each alternative. The last group of graphs provide comparisons of the modeled water temperature for various locations along the mainstream Colorado River, including downstream Glen Canyon Dam (Glen Canyon Dam releases), at Lees Ferry, downstream of the Little Colorado River, and near Diamond Creek. The remainder of the information provided in this section consists of tables that provide comparisons of the average modeled water temperature along the mainstream of the Colorado River at Lees Ferry, downstream of the Little Colorado River, and near Diamond Creek.



Figure P-BCR-1  
 Lake Powell End-of-July Elevations  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

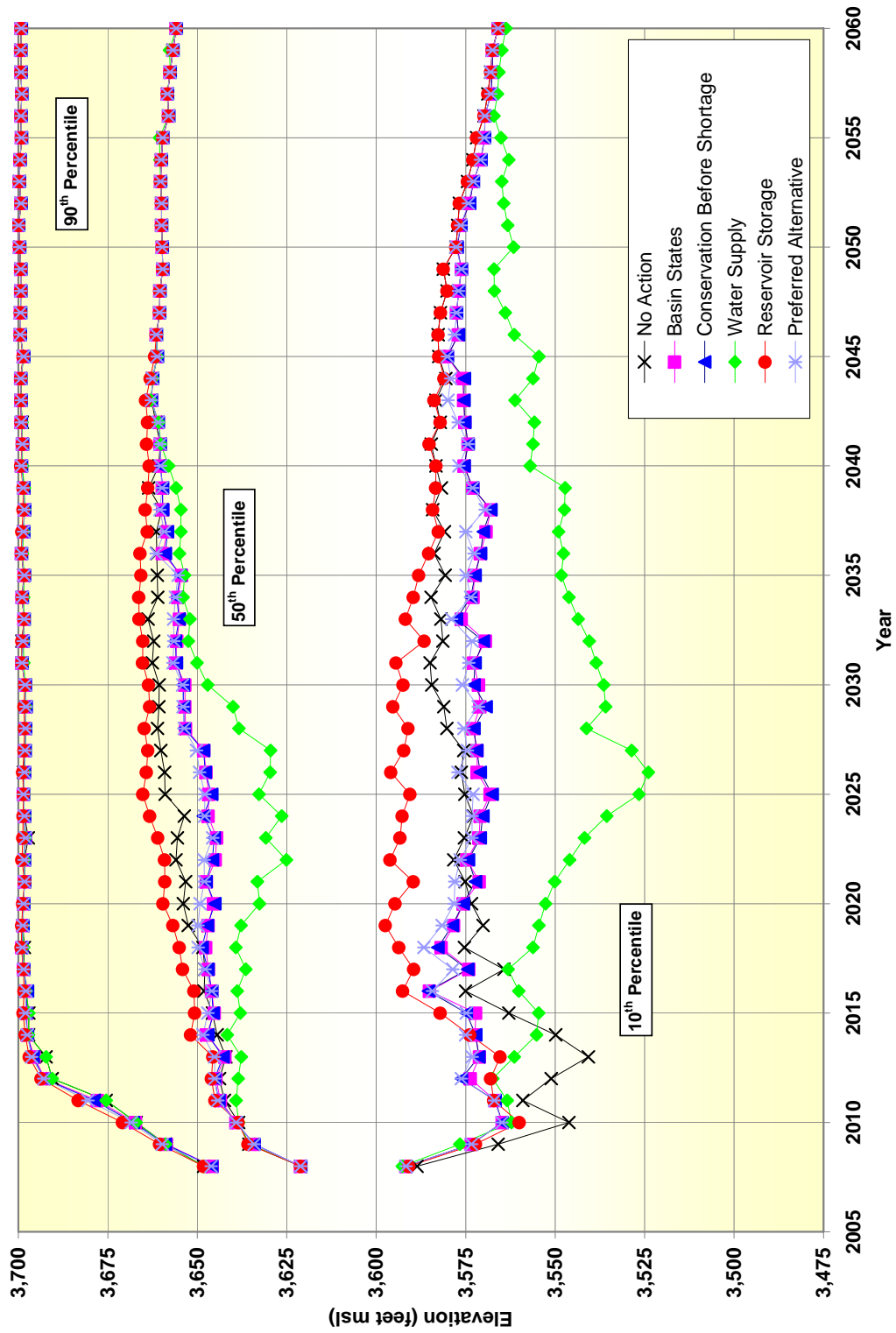


Figure P- BCR-2  
 Lake Powell End-of-September Elevations  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

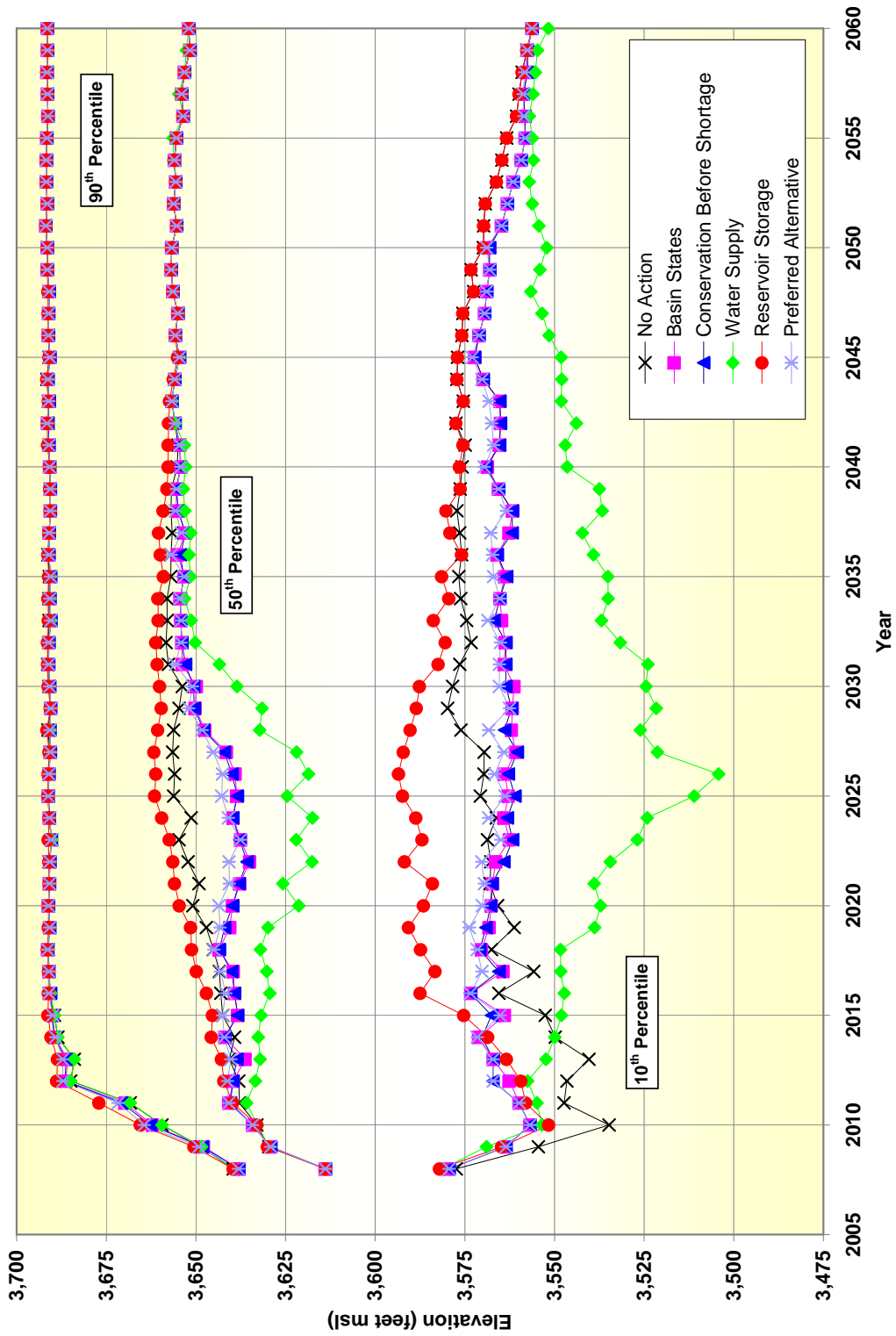


Figure P- BCR-3  
 Lake Mead End-of-February Elevations  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

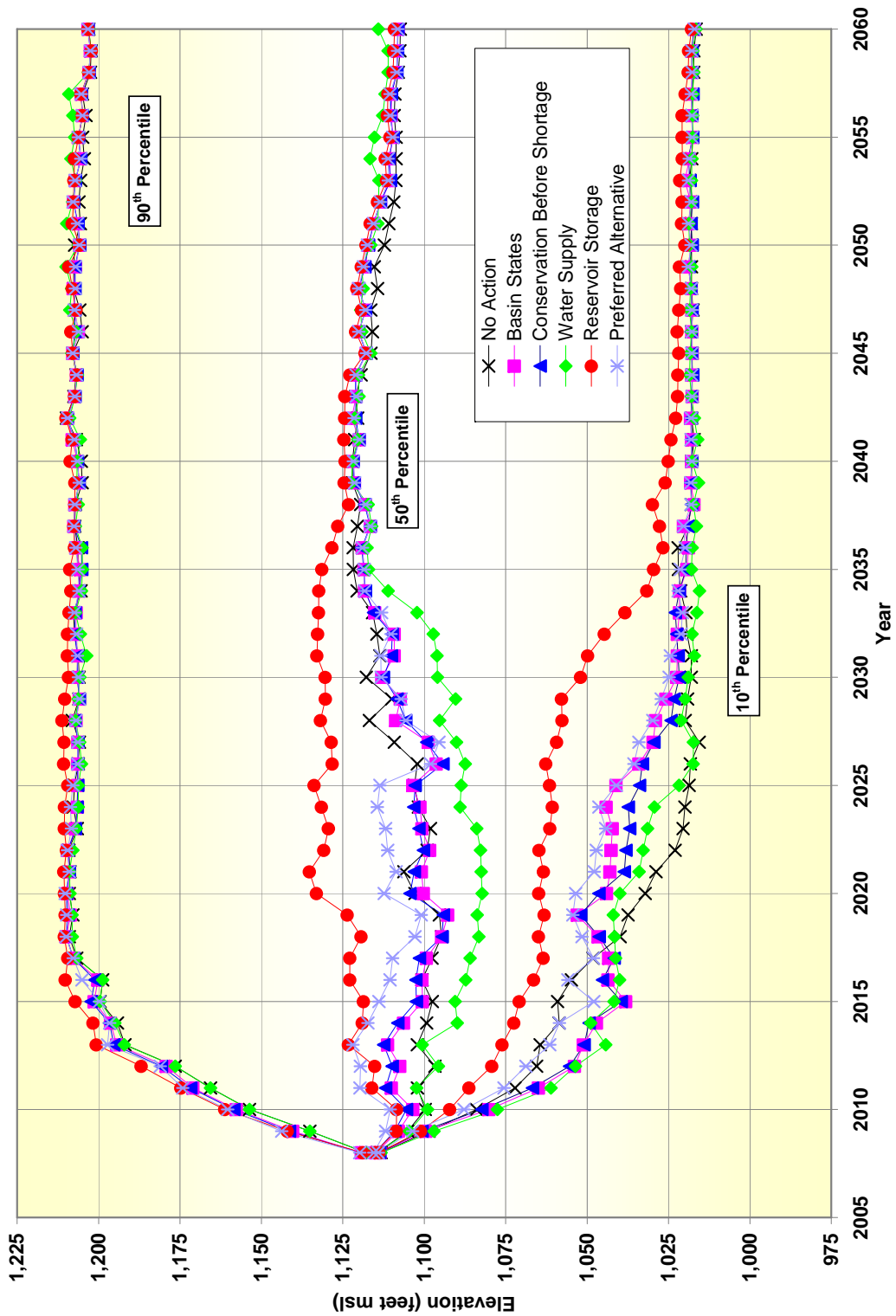


Figure P- BCR-4  
Lake Mead End-of-March Elevations  
Comparison of Action Alternatives to No Action Alternative  
90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

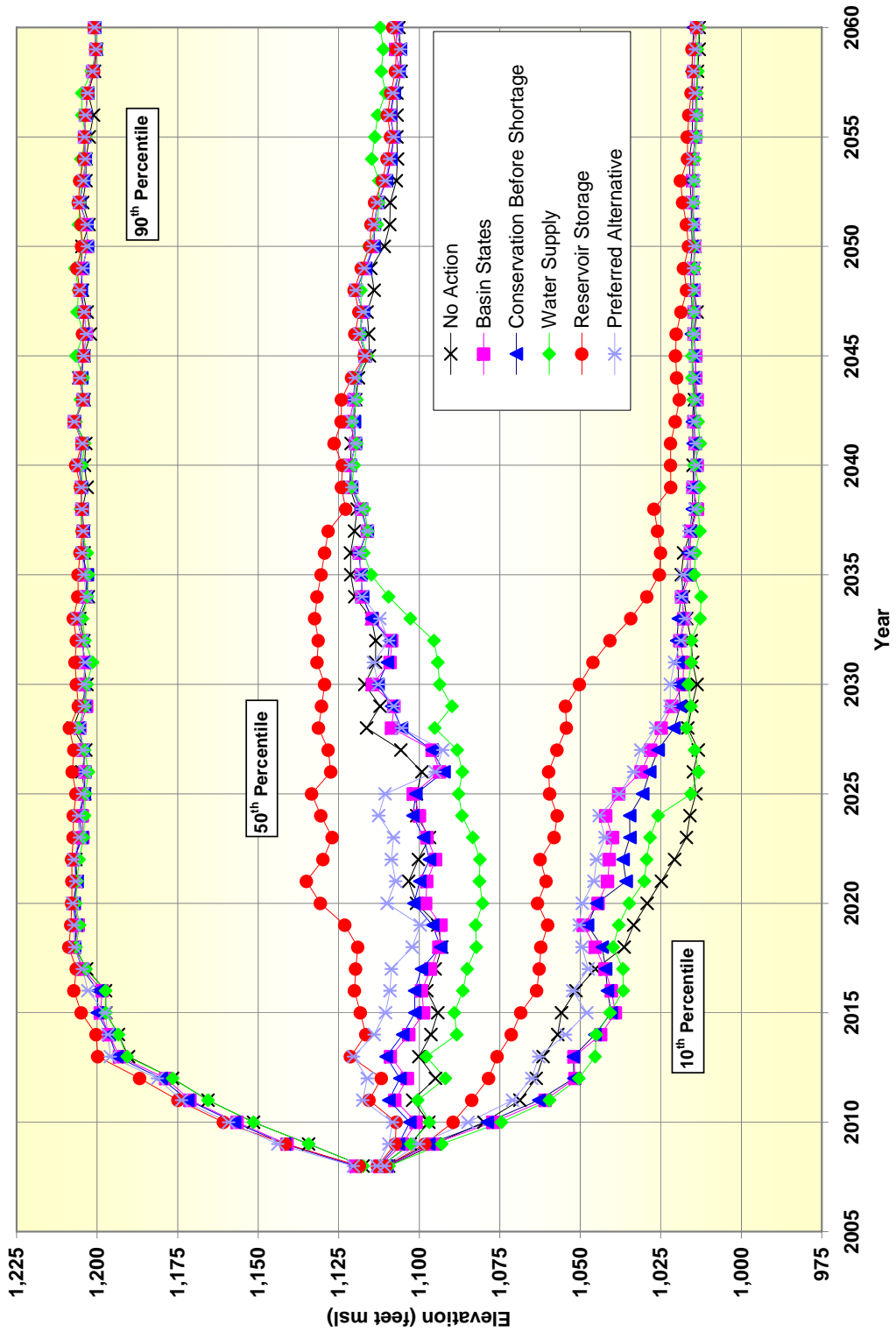


Figure P- BCR-5  
 Lake Mead End-of-April Elevations  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

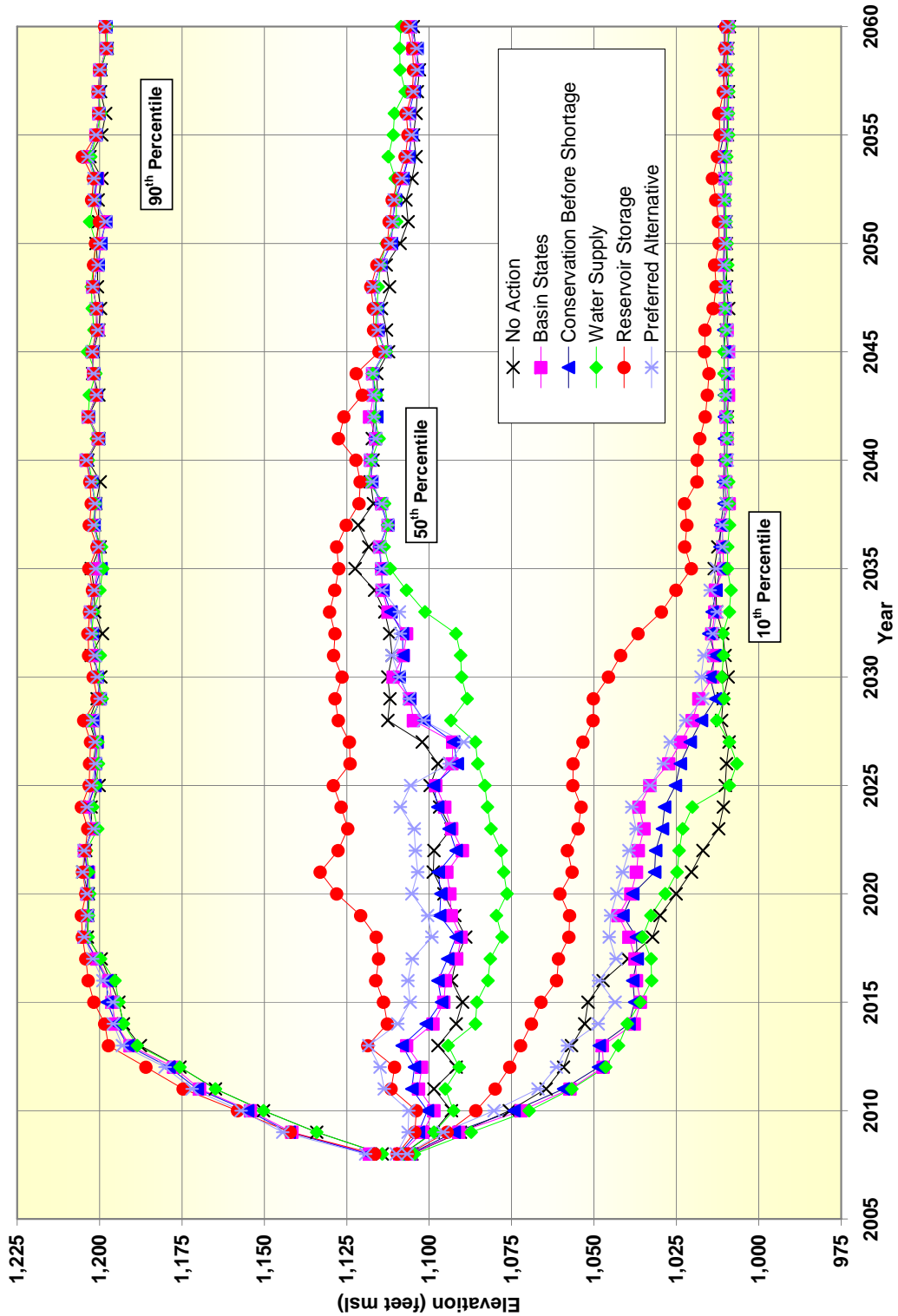


Figure P- BCR-6  
 Lake Mead End-of-July Elevations  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

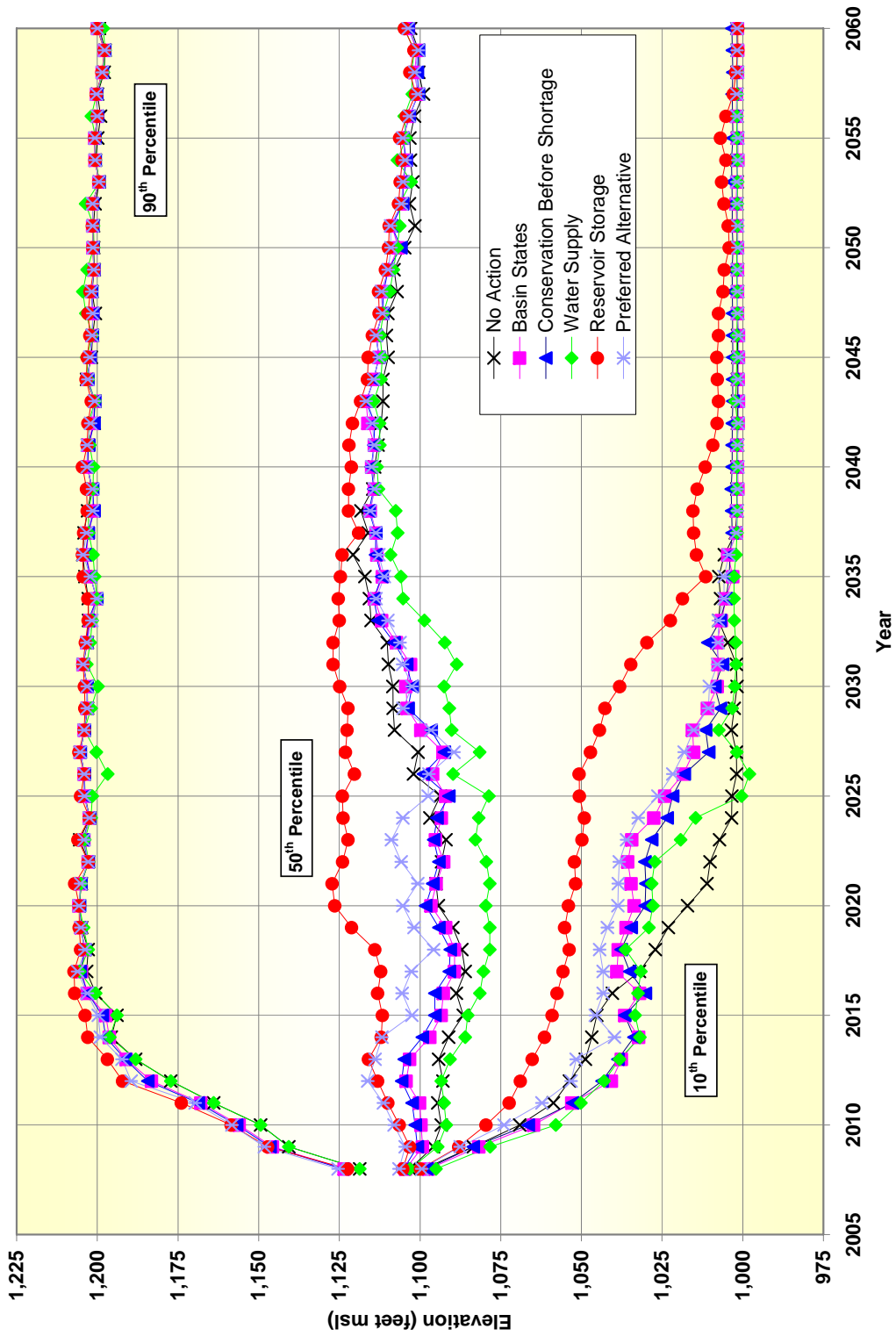




Figure P- BCR-7  
 Lake Mead End-of-September Elevations  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

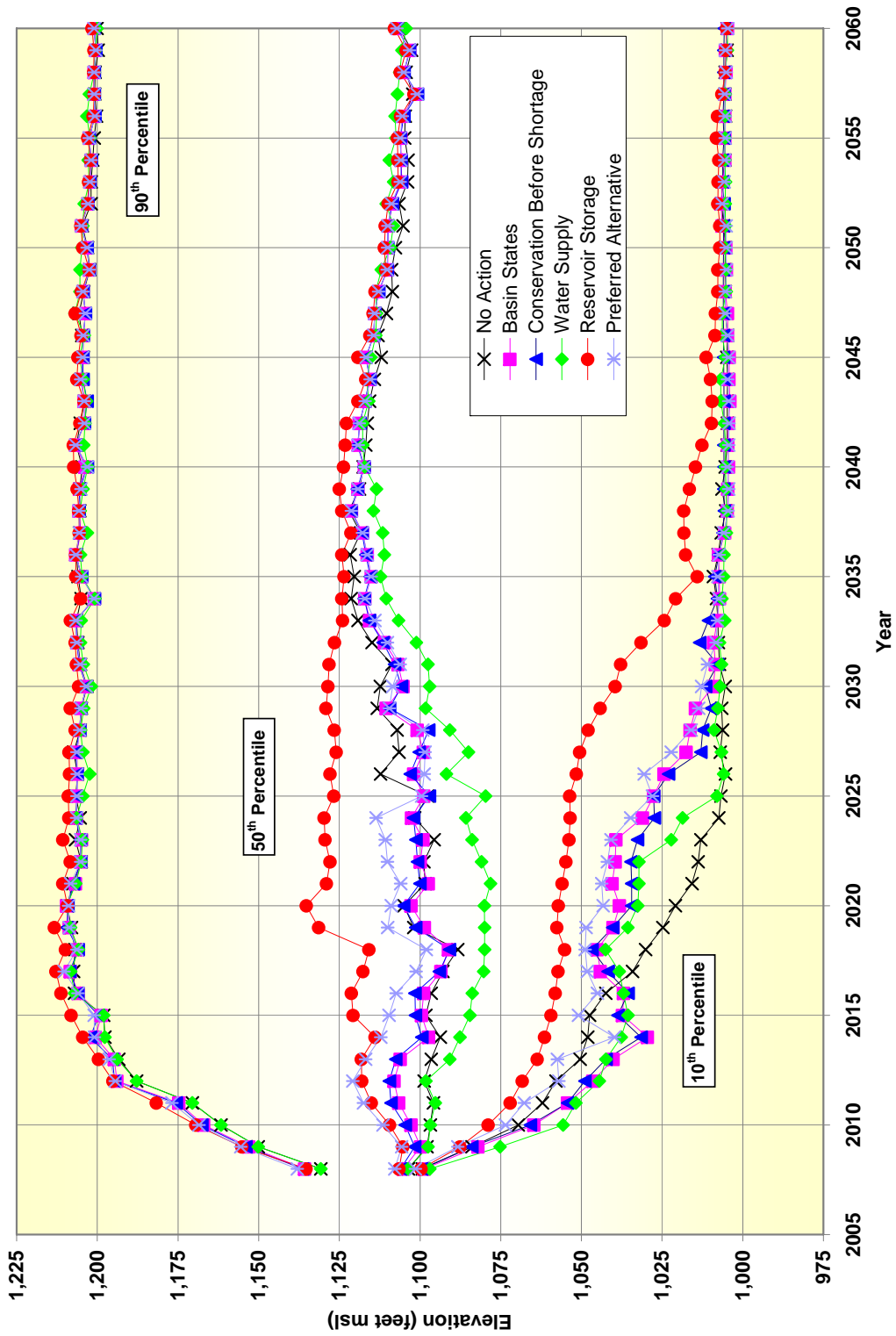


Figure P- BCR-8  
 Glen Canyon Dam January Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

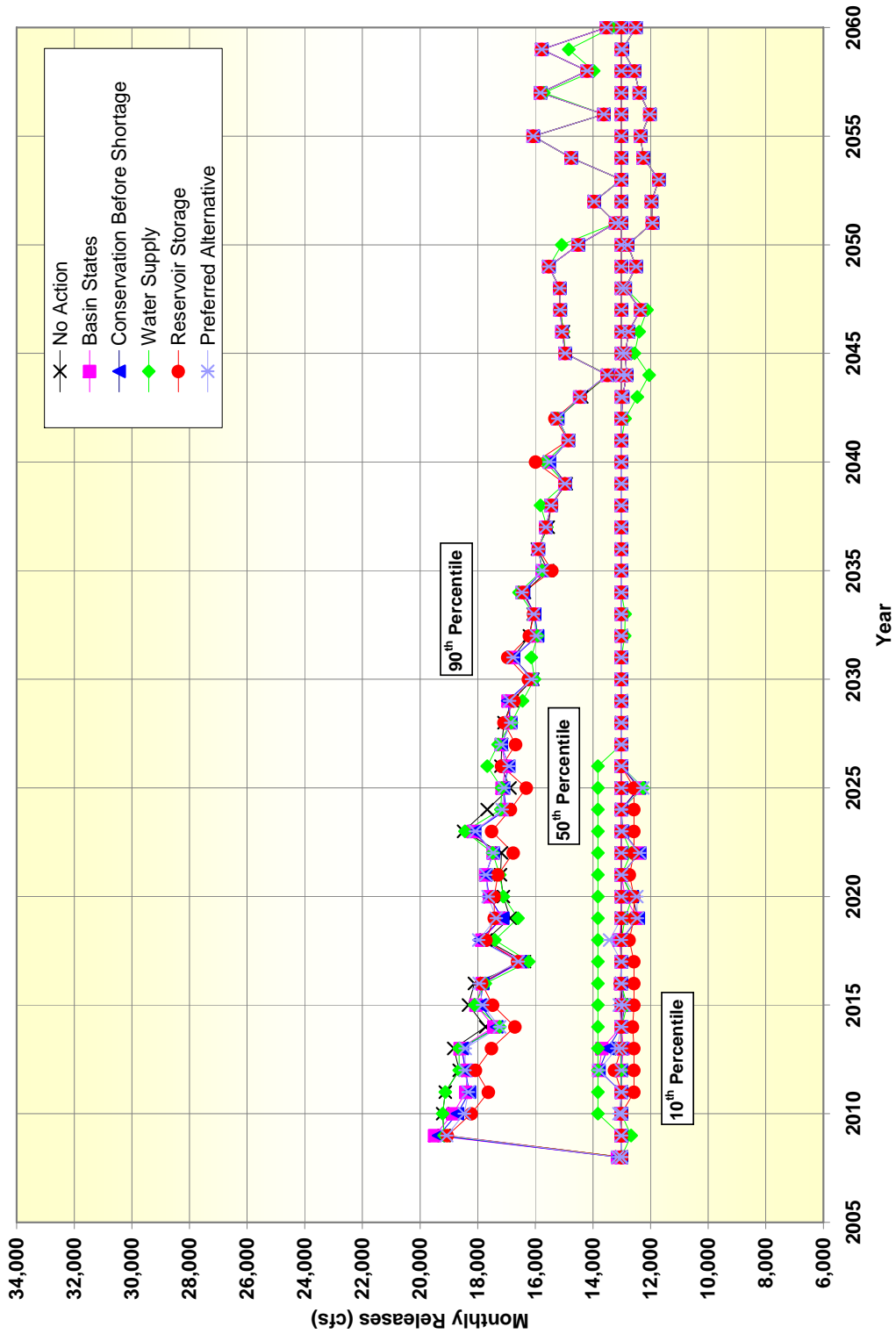


Figure P- BCR-9  
 Glen Canyon Dam February Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

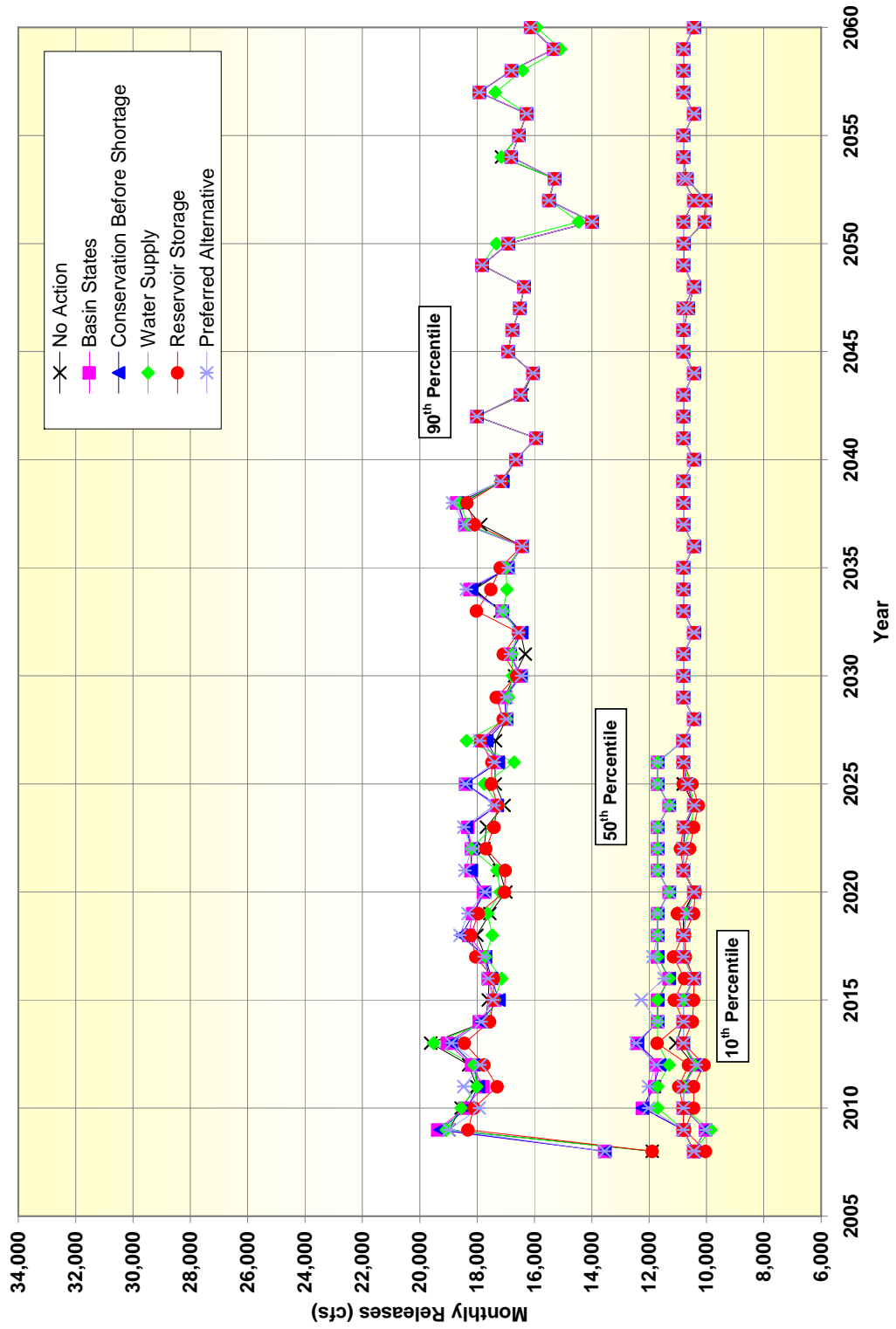


Figure P- BCR-10  
 Glen Canyon Dam March Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

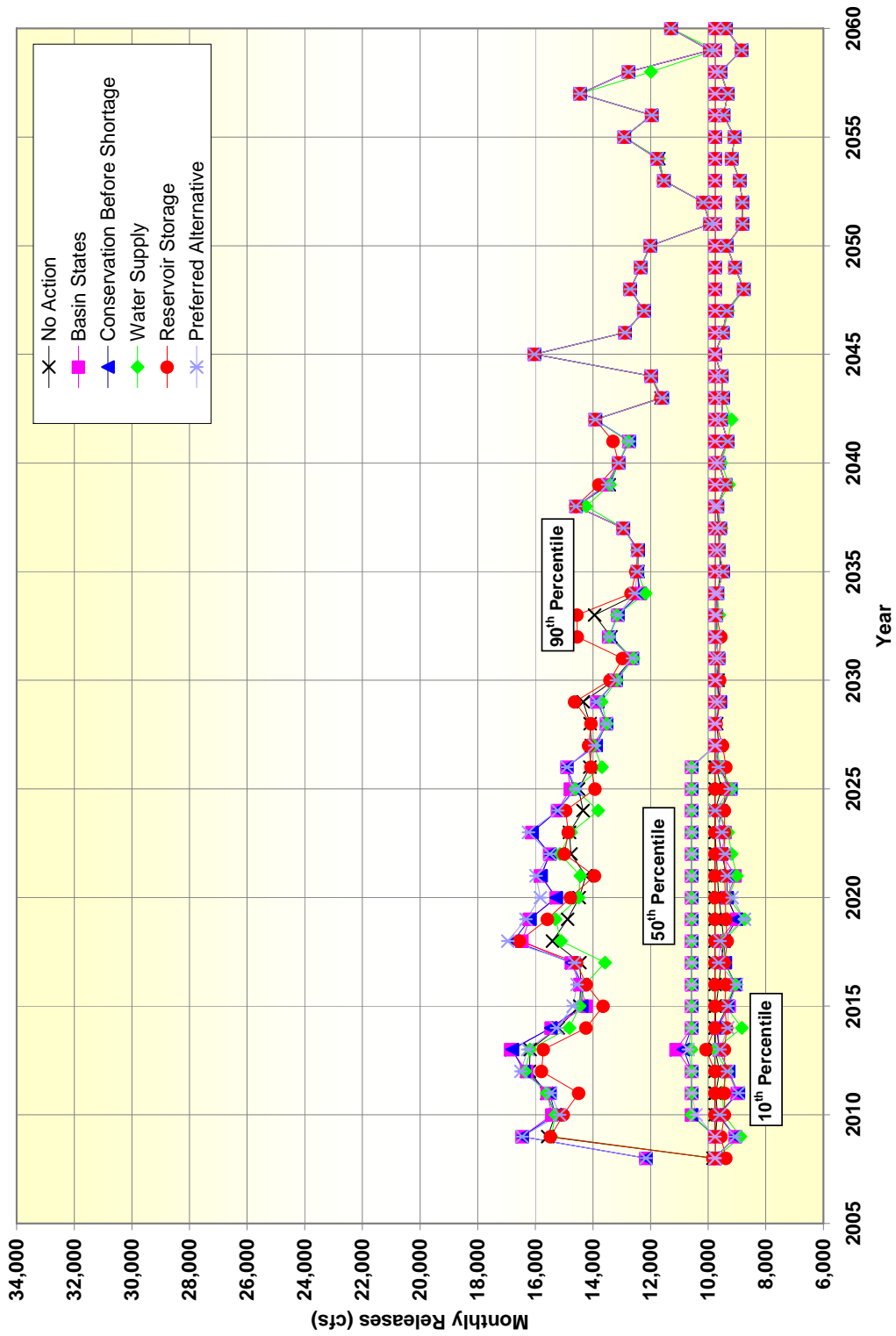


Figure P- BCR-11  
 Glen Canyon Dam April Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

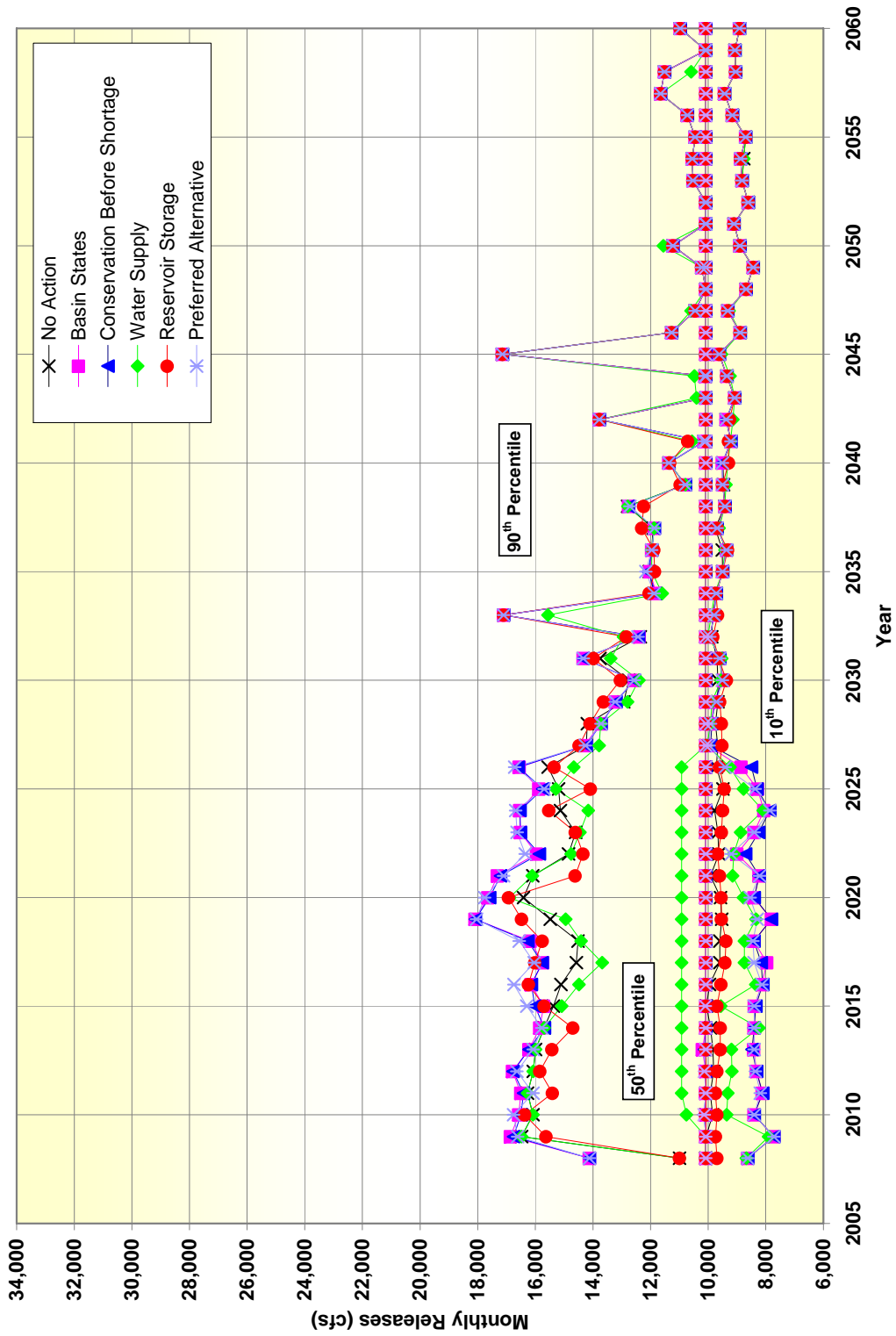


Figure P- BCR-12  
 Glen Canyon Dam May Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

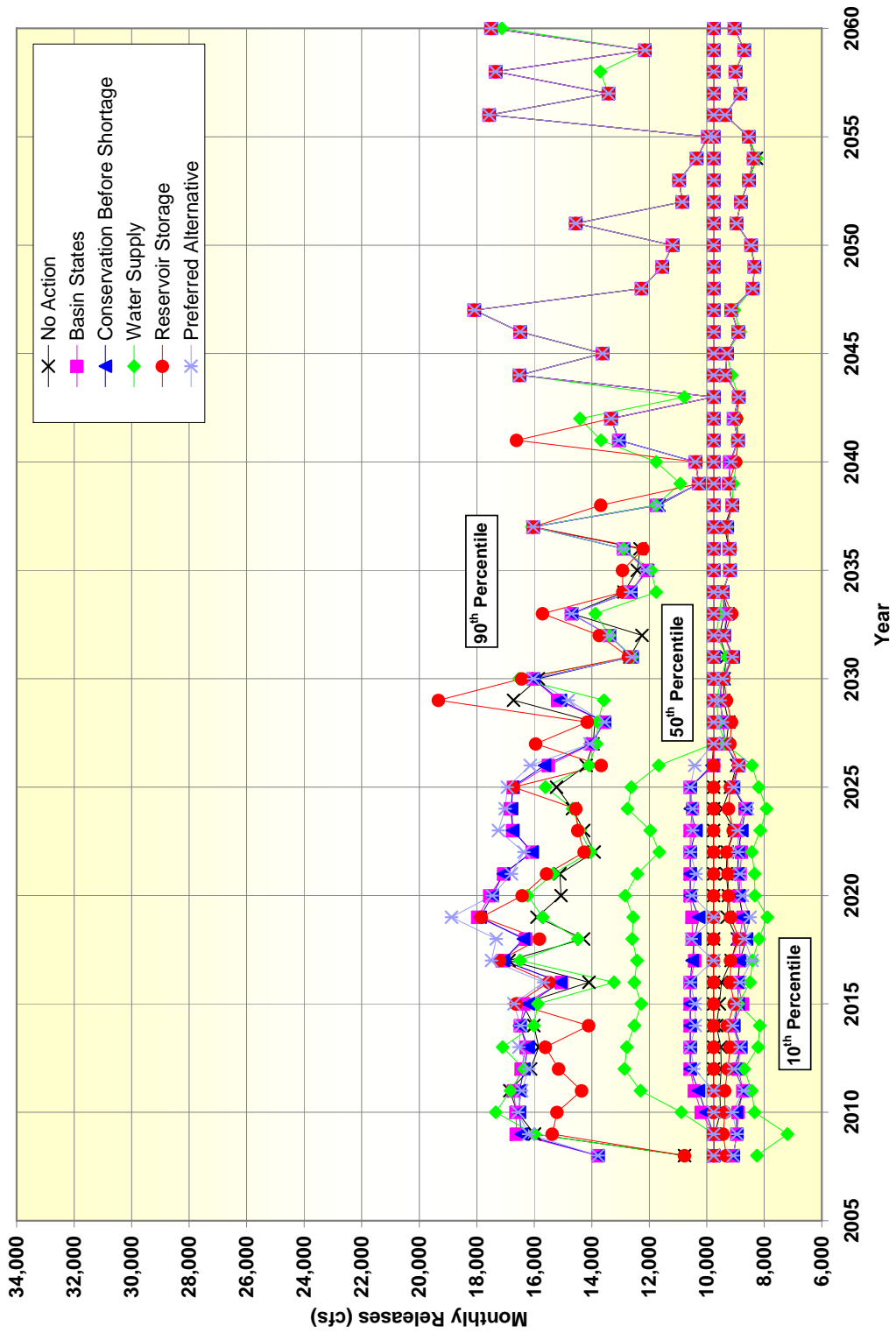


Figure P- BCR-13  
 Glen Canyon Dam June Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

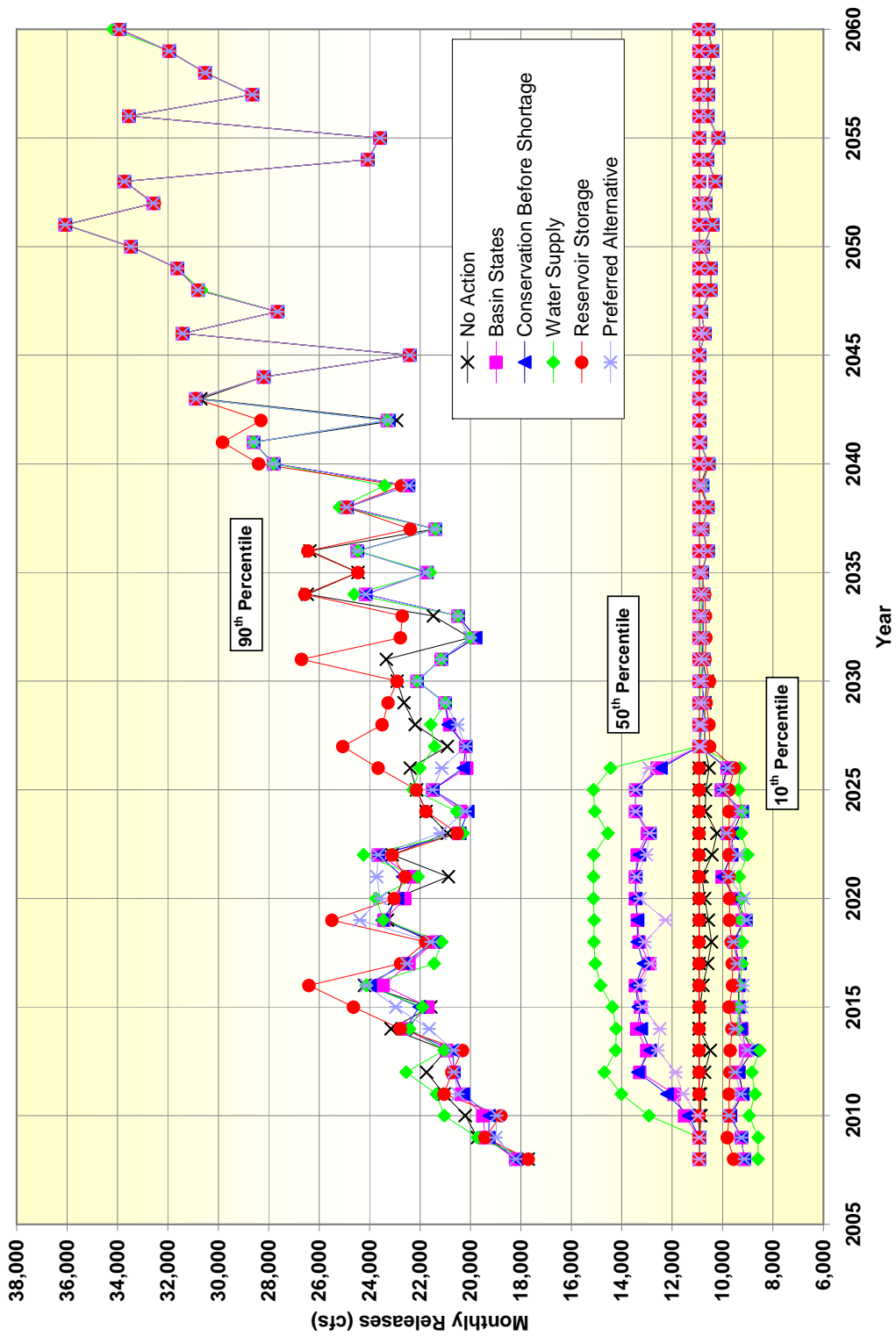


Figure P- BCR-14  
 Glen Canyon Dam July Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

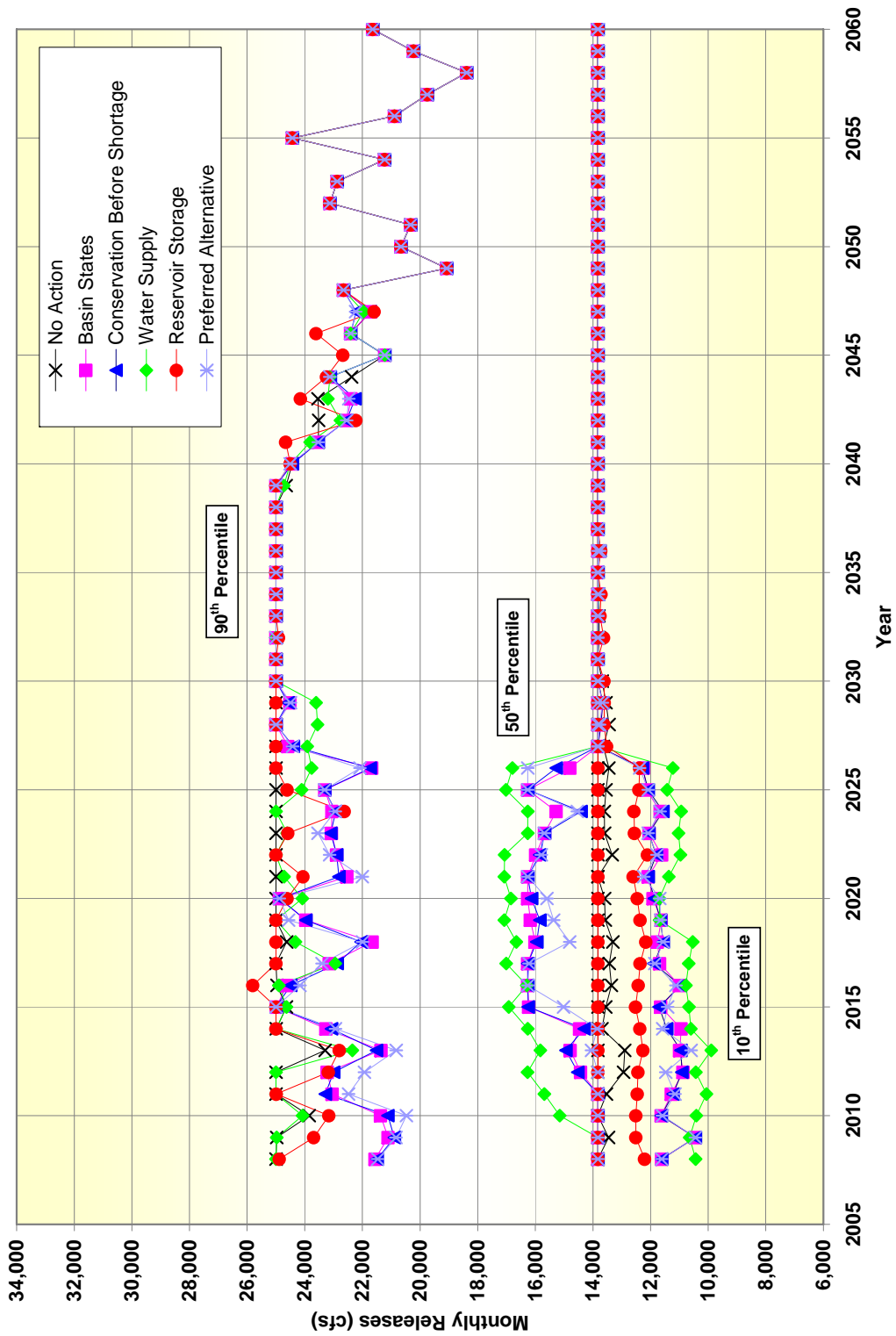




Figure P- BCR-15  
 Glen Canyon Dam August Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

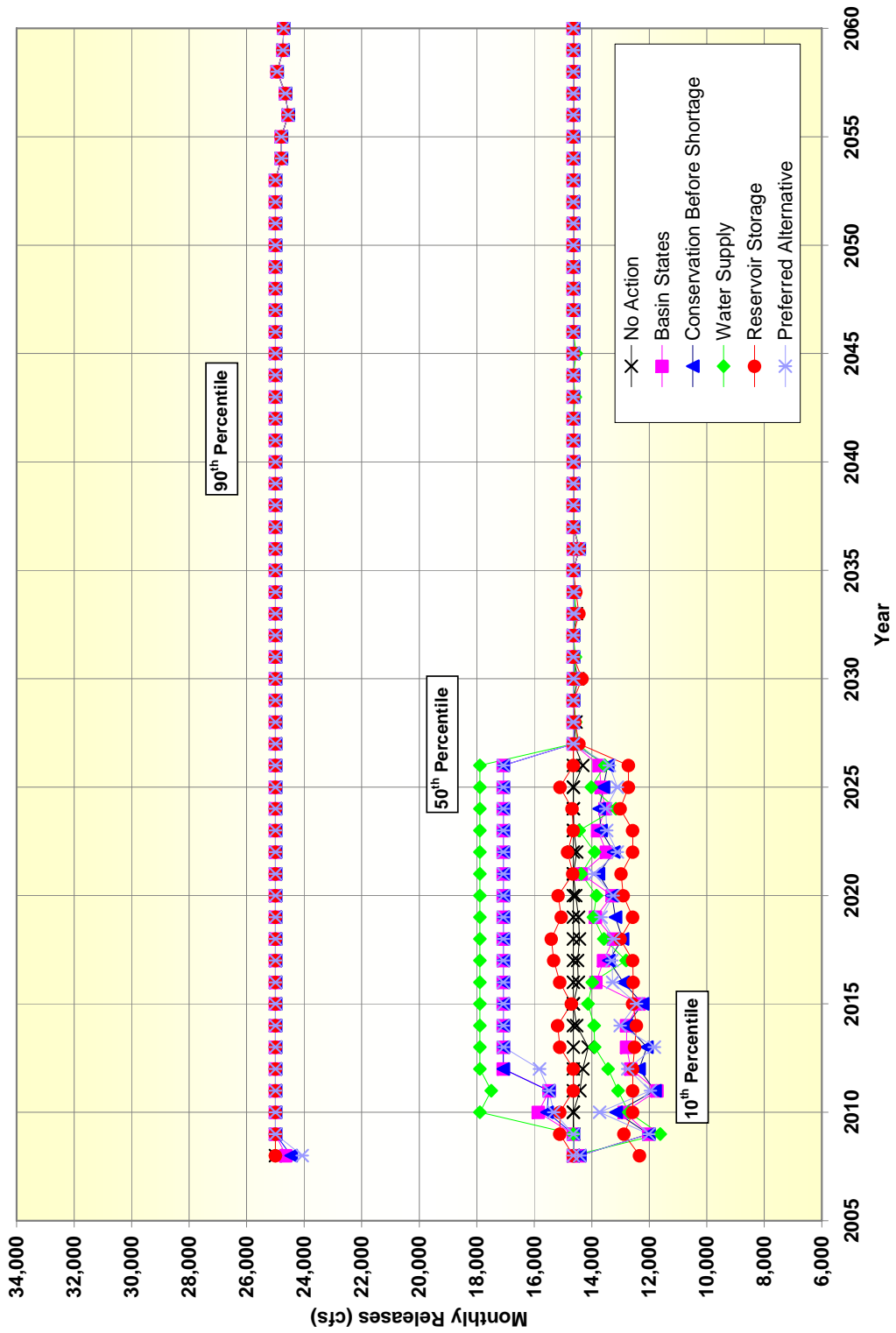


Figure P- BCR-16  
 Glen Canyon Dam September Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

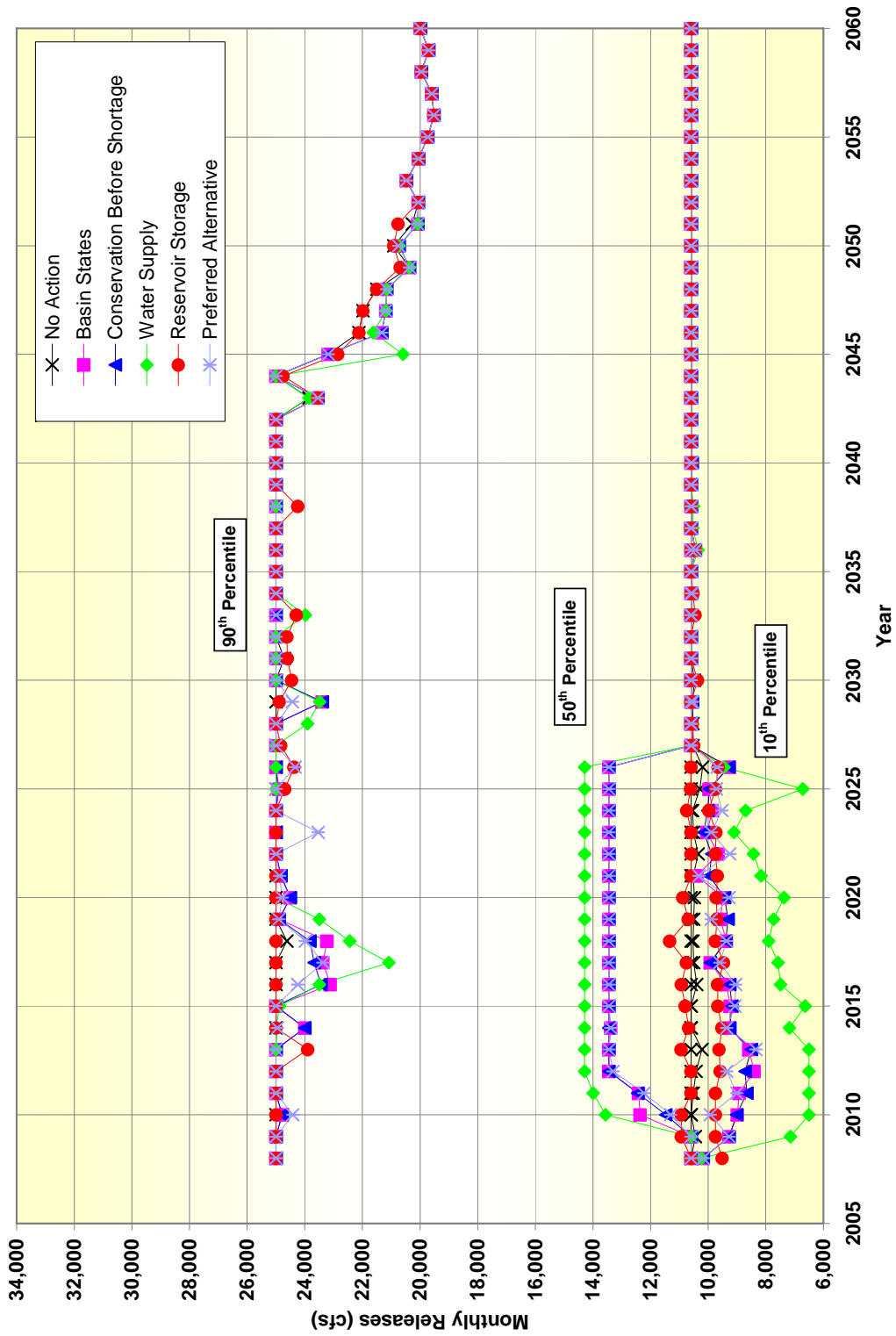


Figure P- BCR-17  
 Glen Canyon Dam October Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

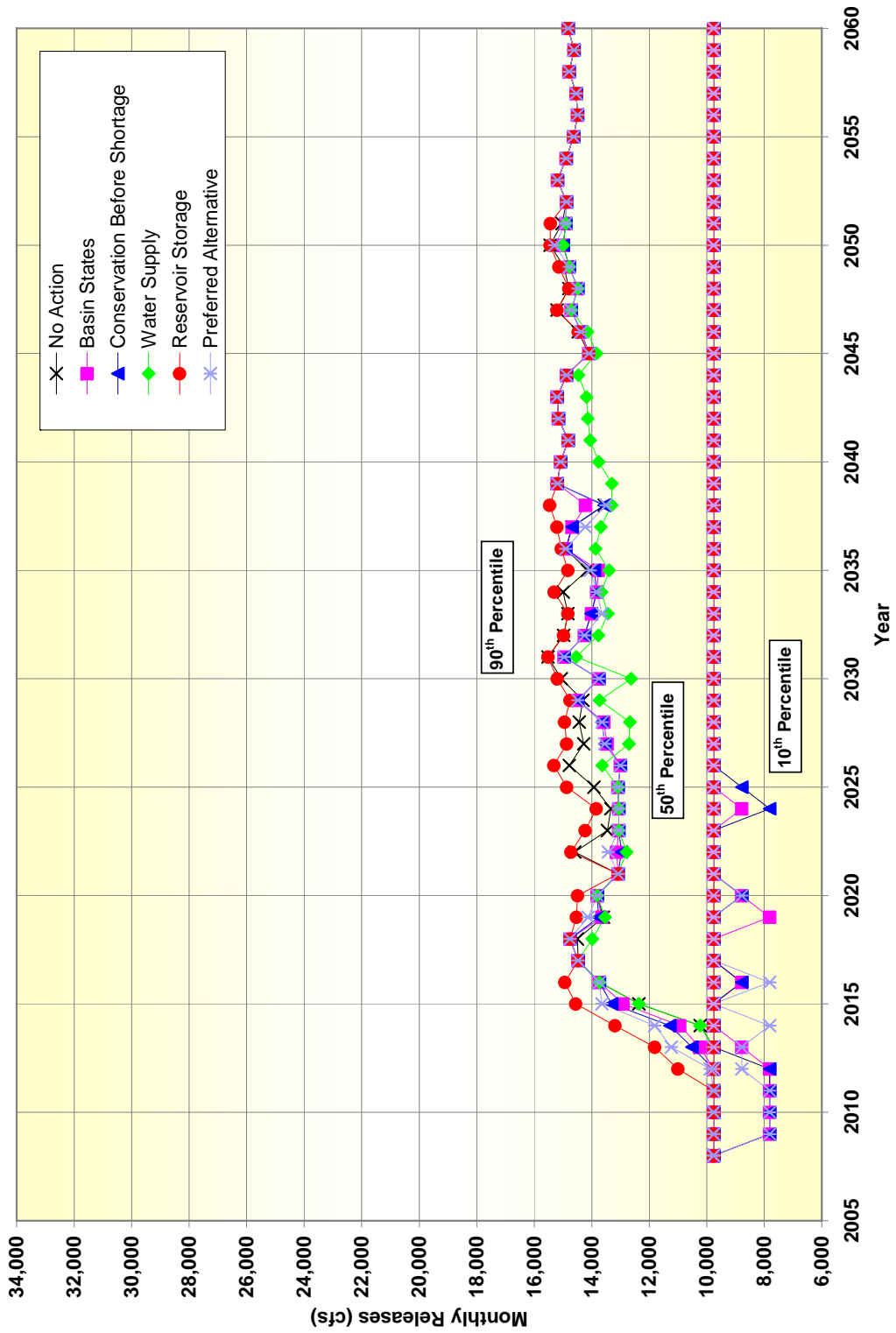


Figure P- BCR-18  
 Glen Canyon Dam November Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

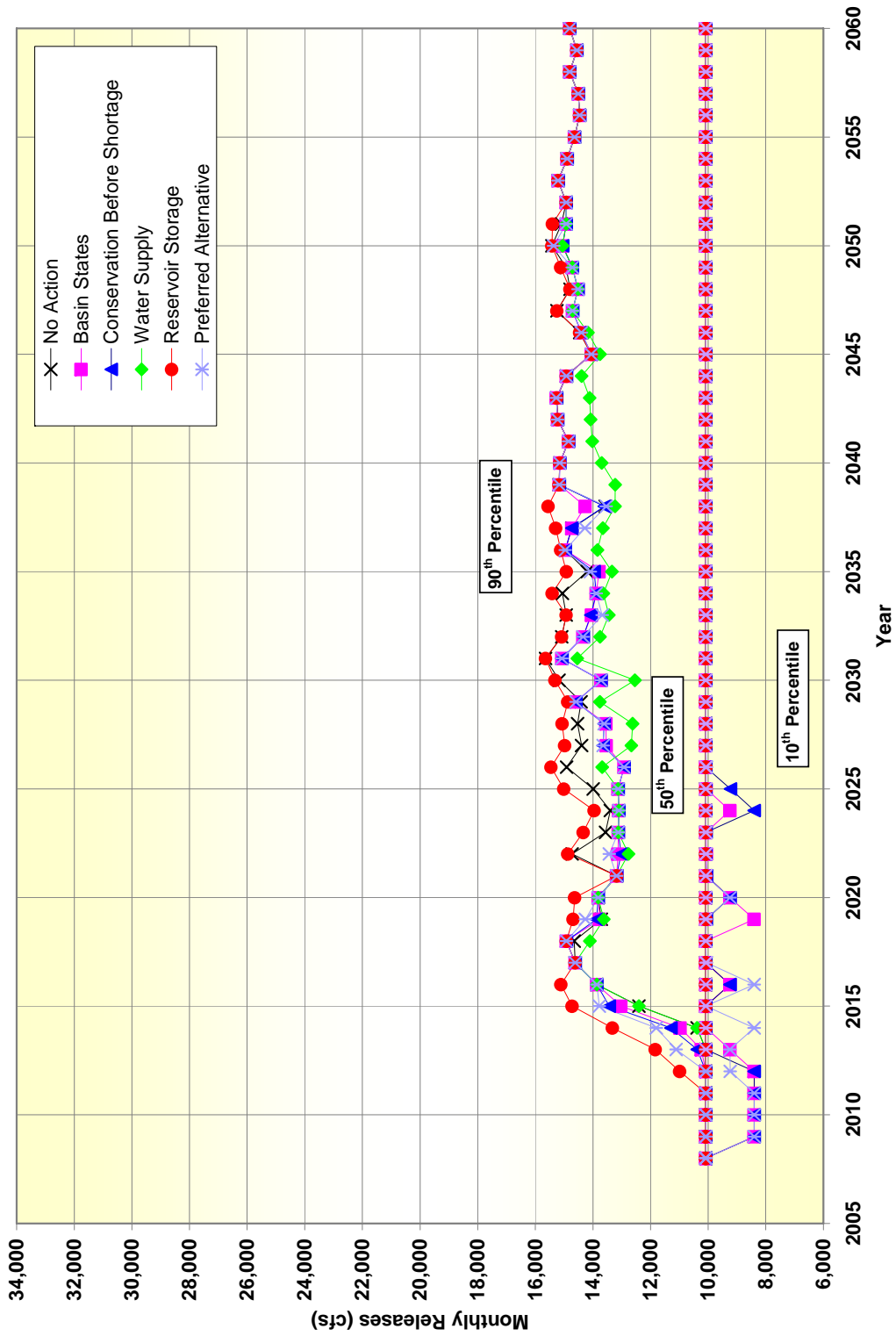


Figure P- BCR-19  
 Glen Canyon Dam December Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

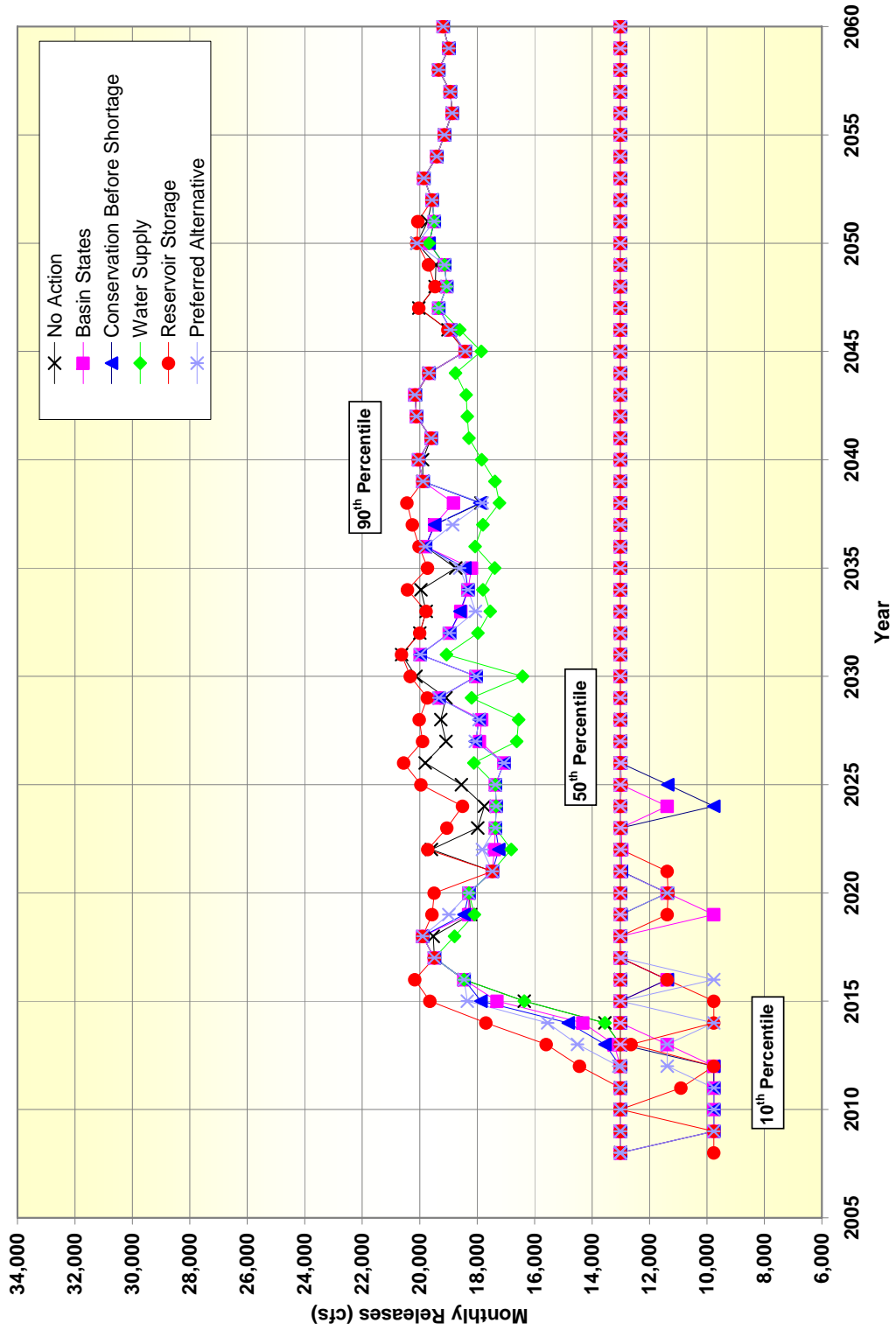


Figure P- BCR-20  
Hoover Dam January Releases  
Comparison of Action Alternatives to No Action Alternative  
90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

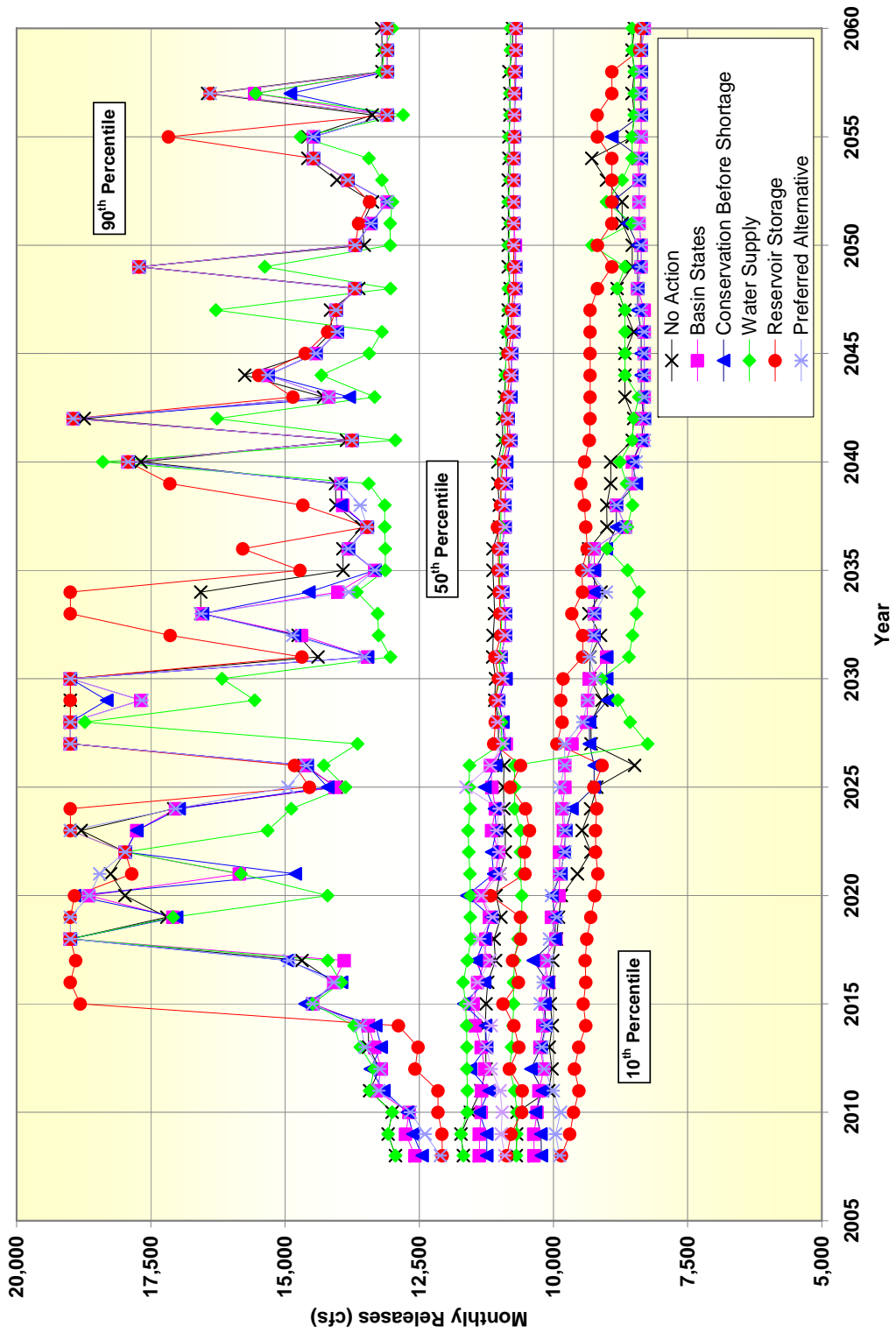


Figure P- BCR-21  
 Hoover Dam February Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

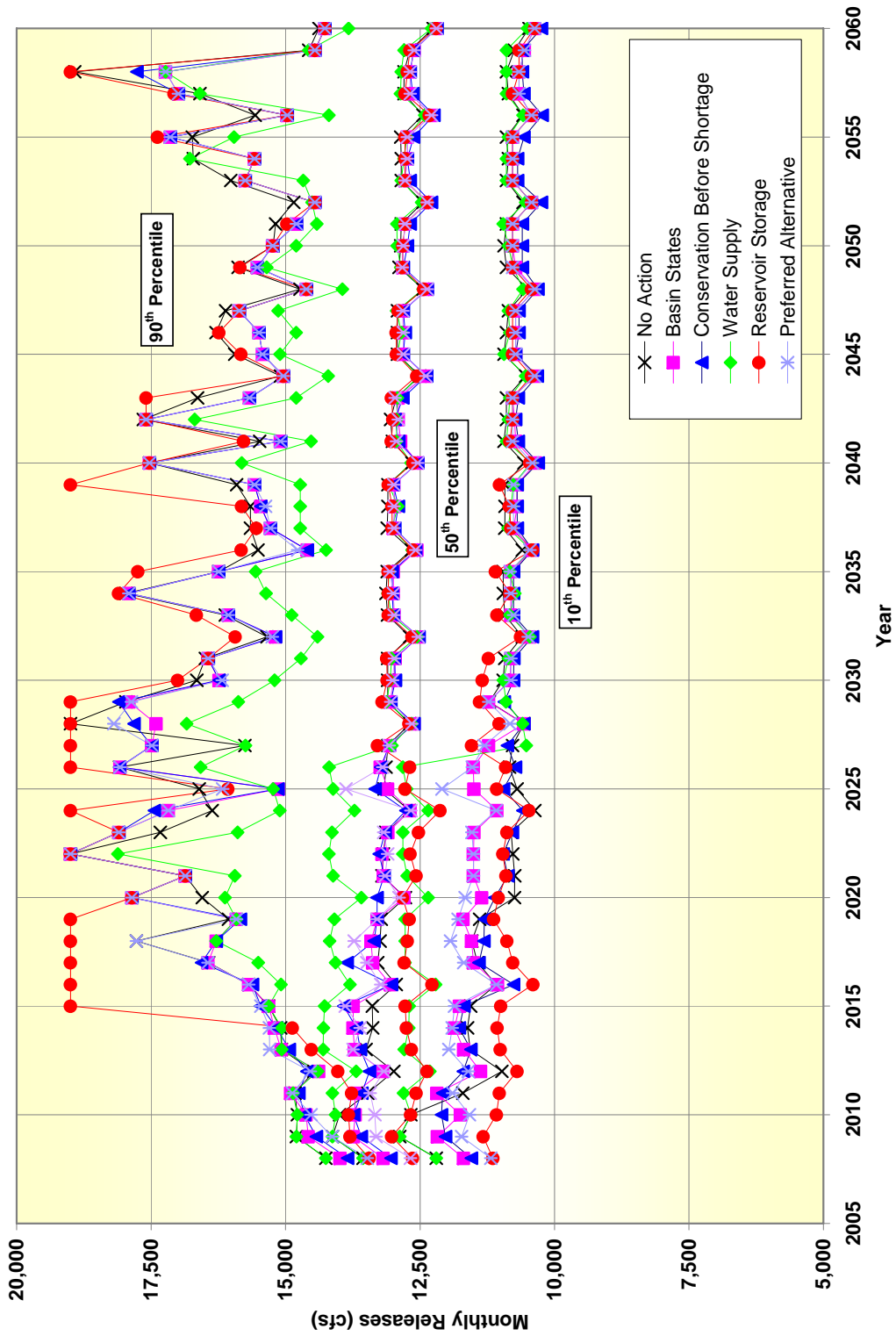


Figure P- BCR-22  
 Hoover Dam March Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

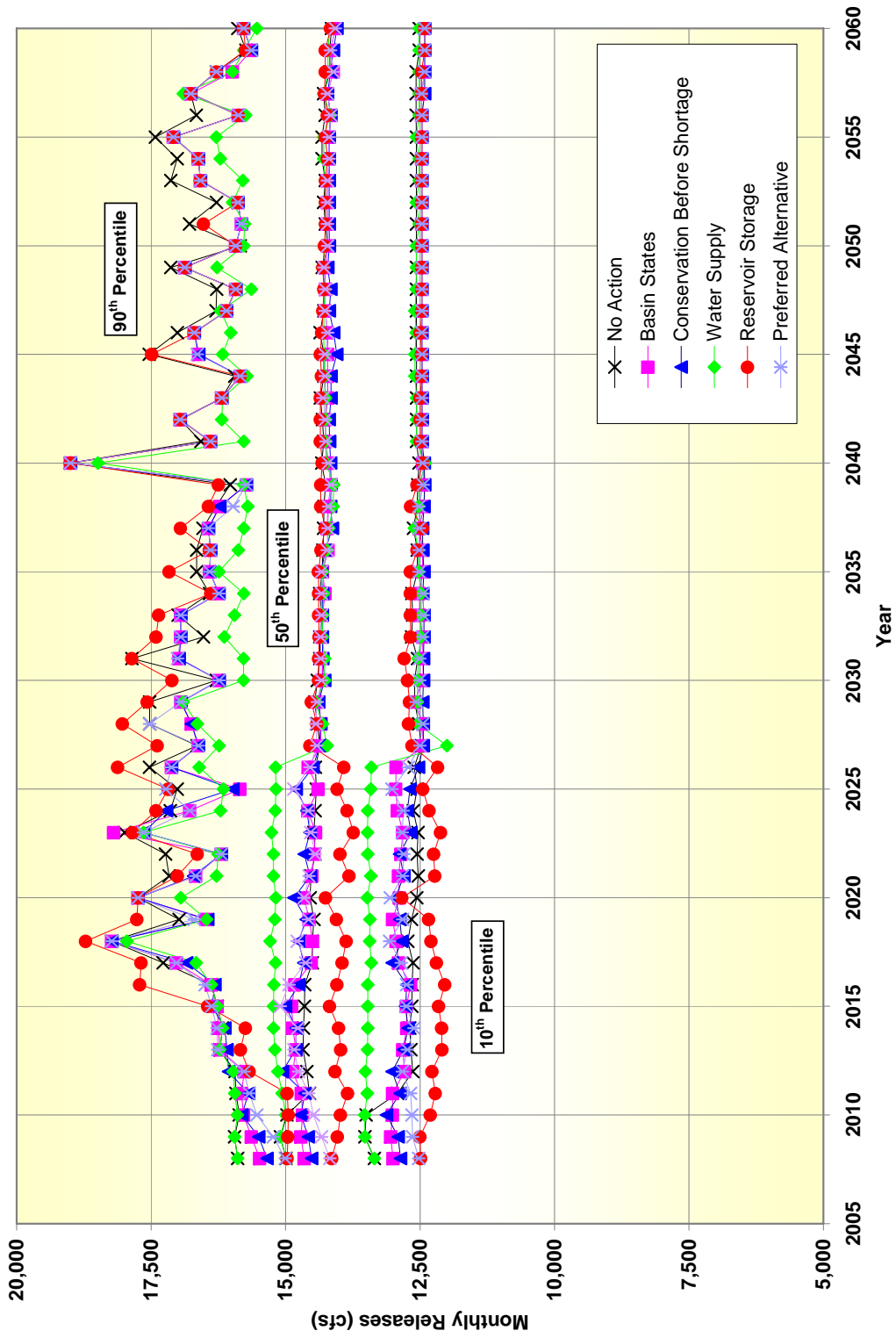




Figure P- BCR-23  
 Hoover Dam April Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

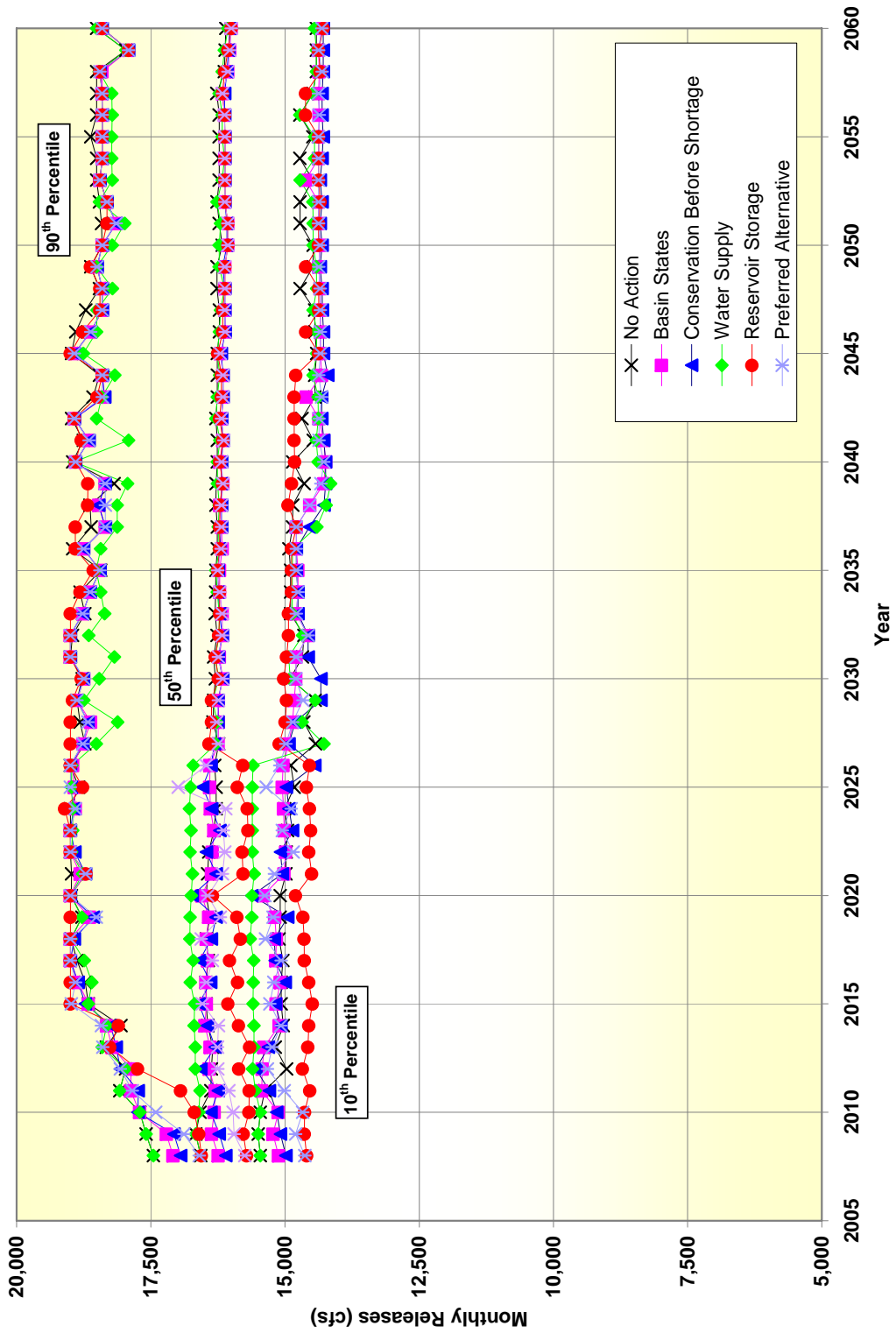


Figure P- BCR-24  
 Hoover Dam May Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

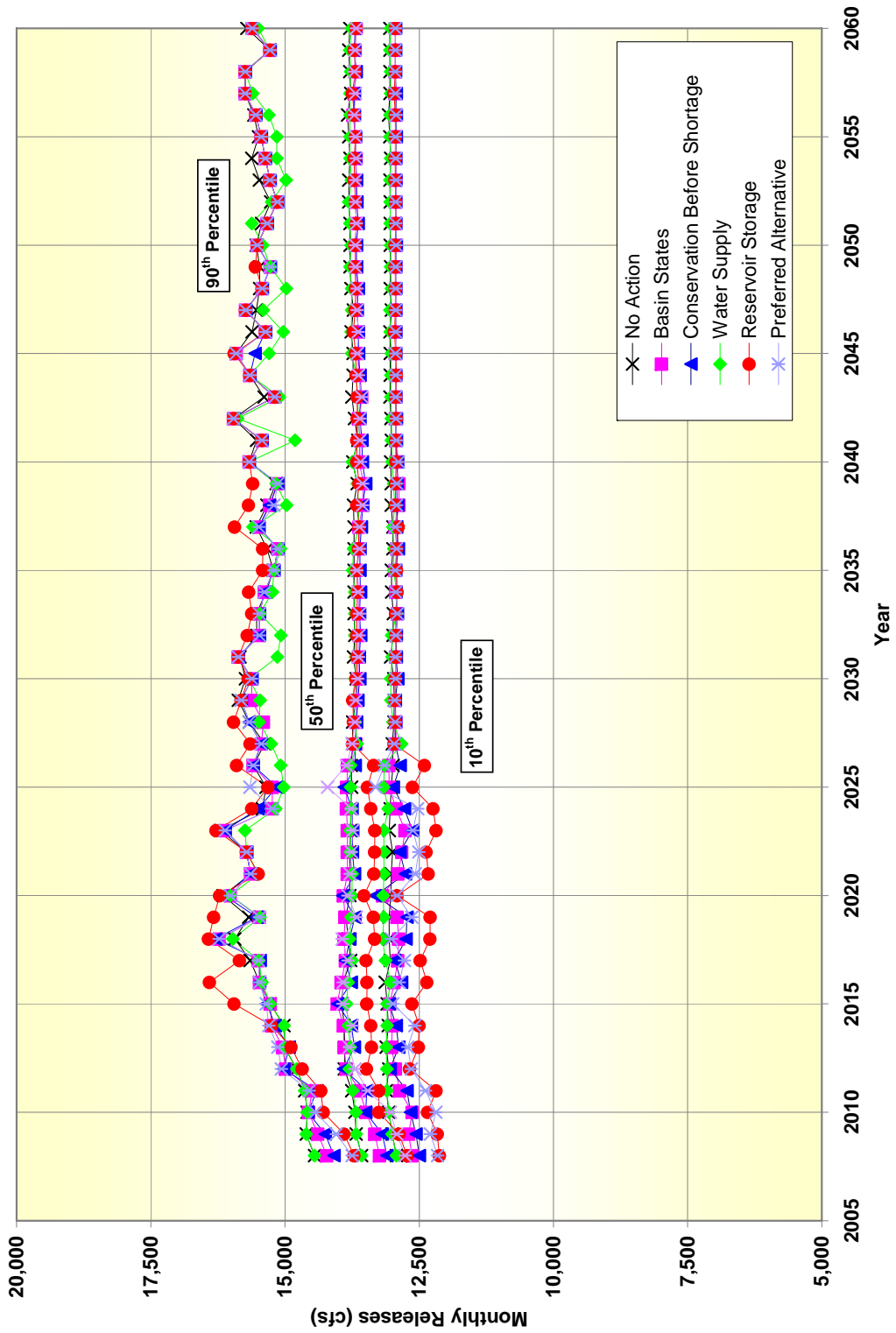


Figure P- BCR-25  
 Hoover Dam June Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

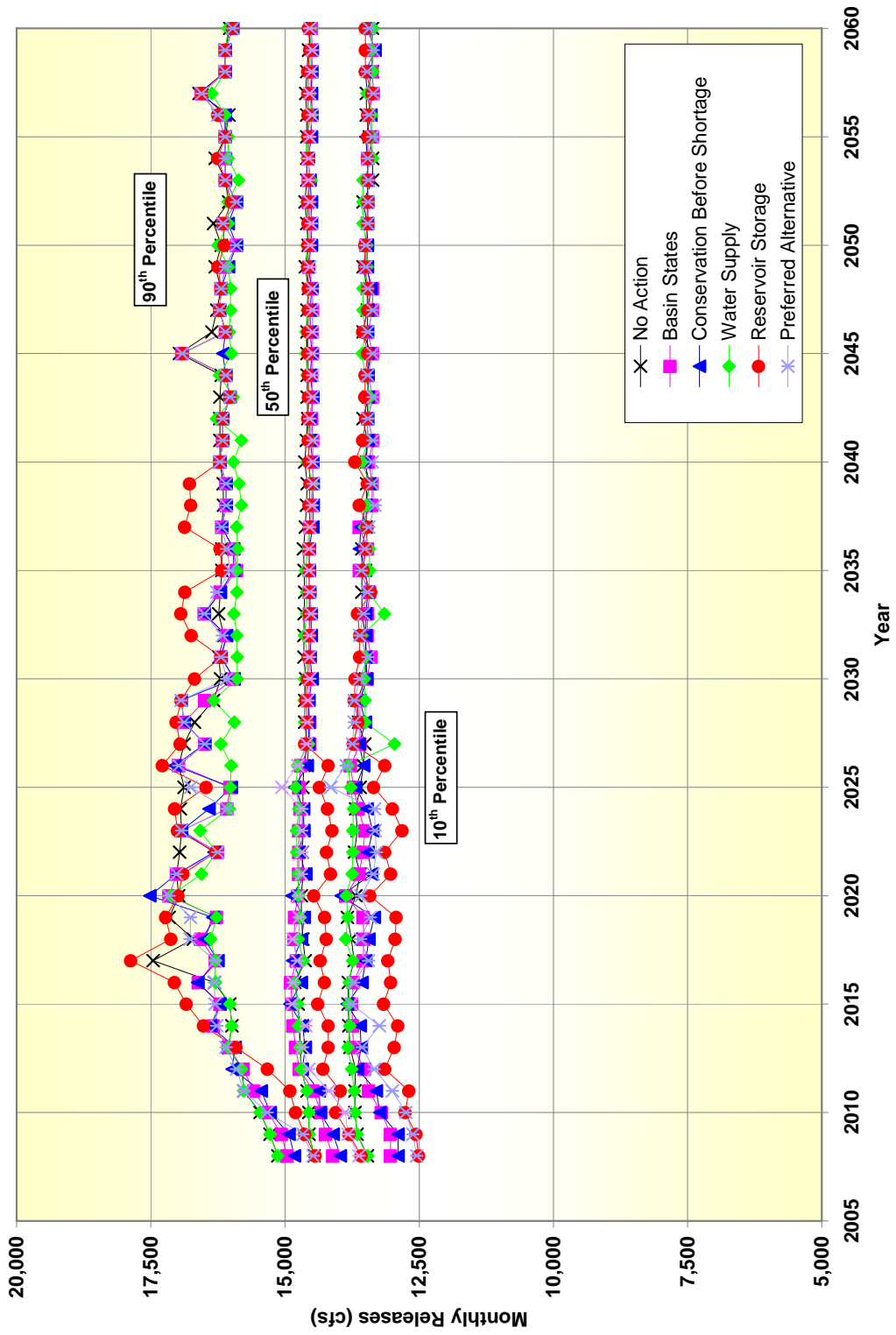


Figure P- BCR-26  
 Hoover Dam July Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

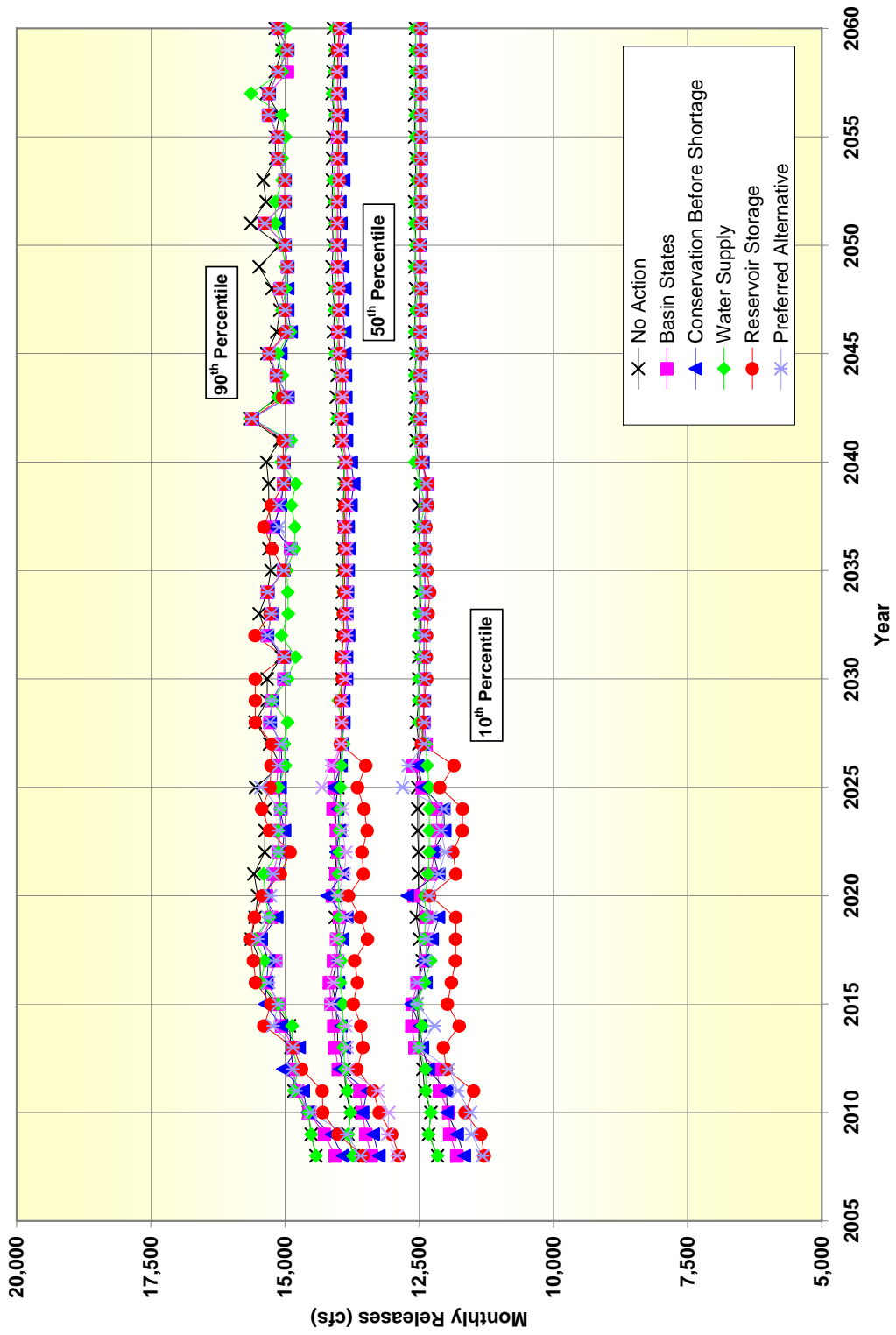


Figure P- BCR-27  
 Hoover Dam August Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

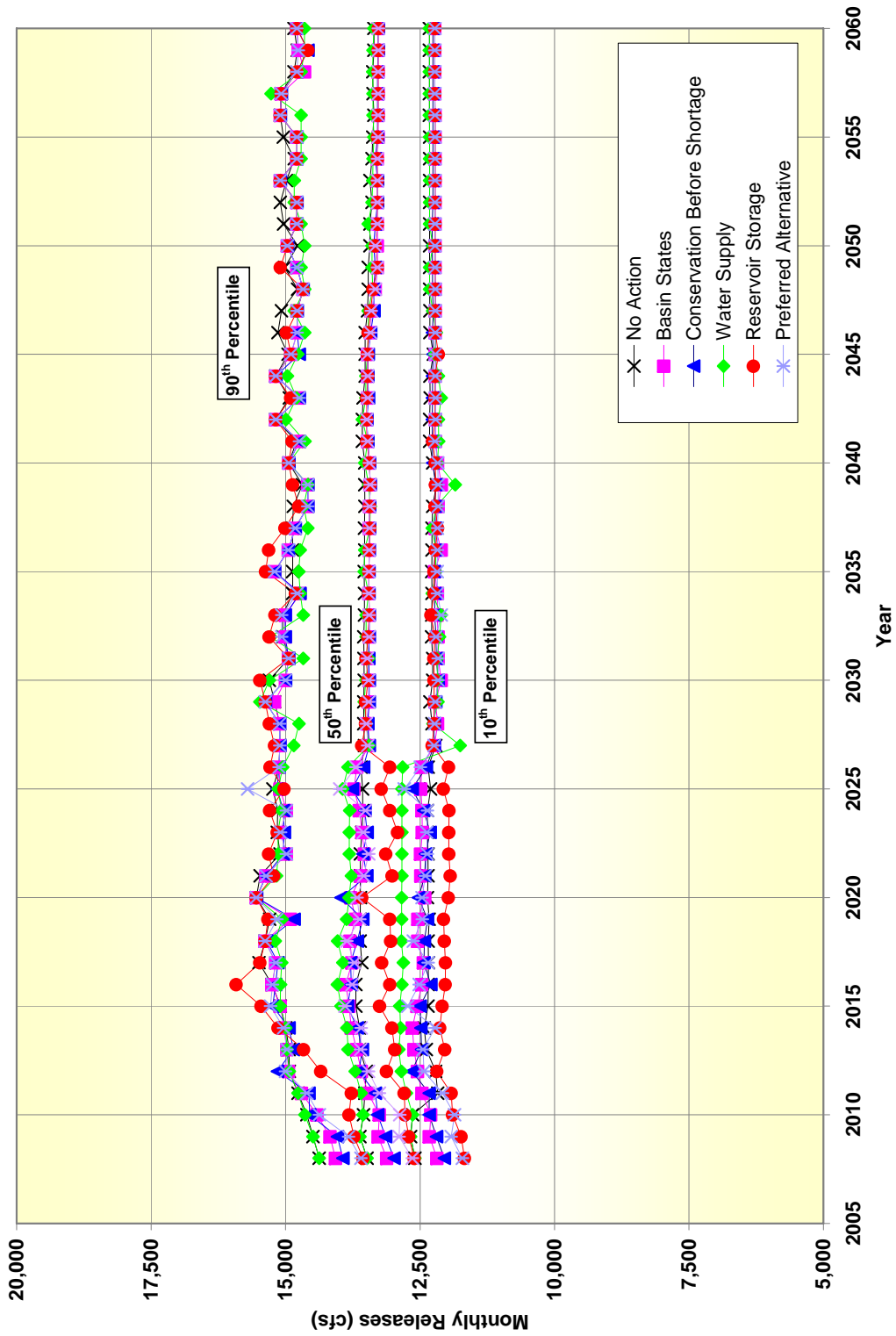


Figure P- BCR-28  
 Hoover Dam September Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

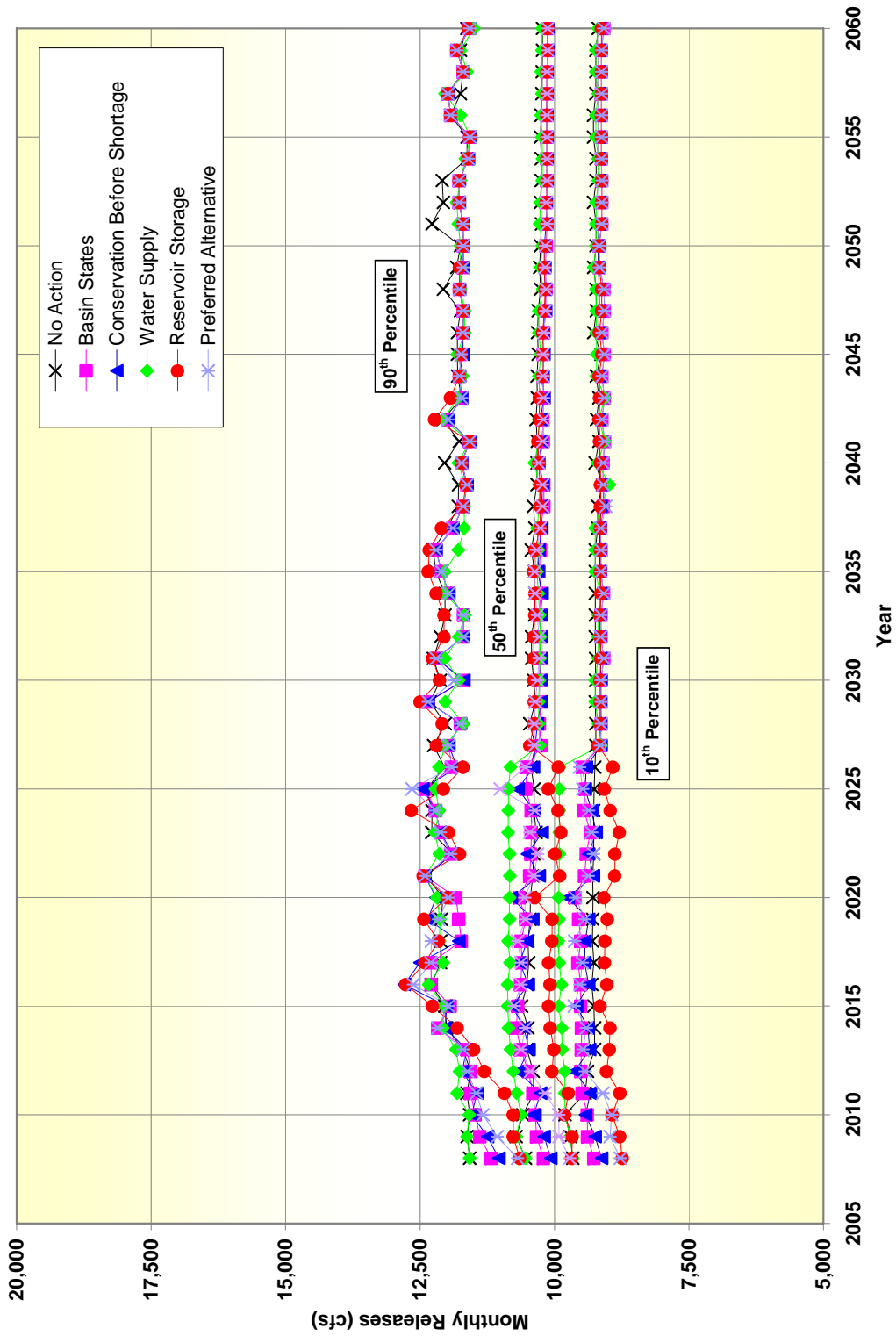


Figure P- BCR-29  
 Hoover Dam October Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

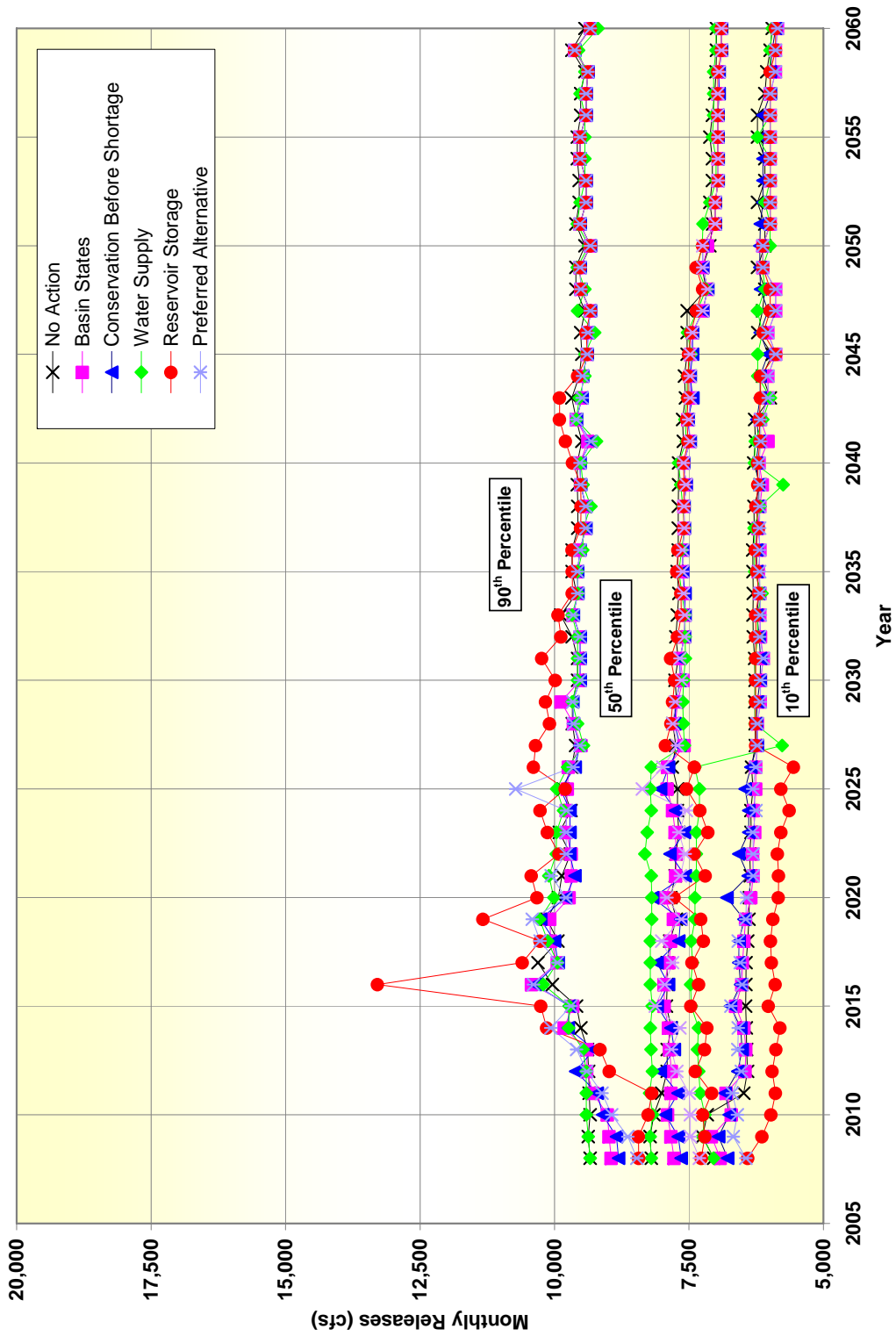


Figure P- BCR-30  
 Hoover Dam November Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

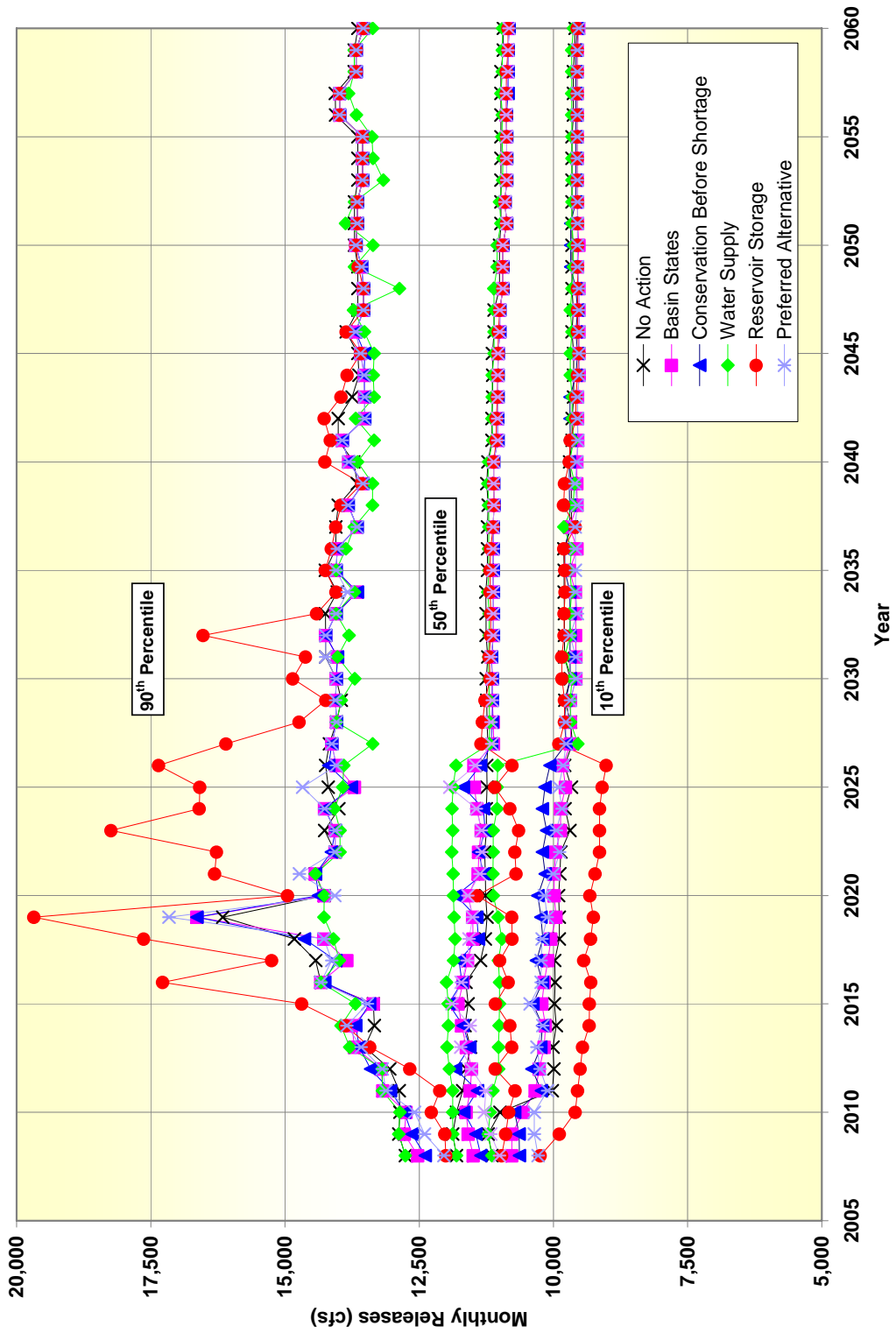




Figure P- BCR-31  
 Hoover Dam December Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

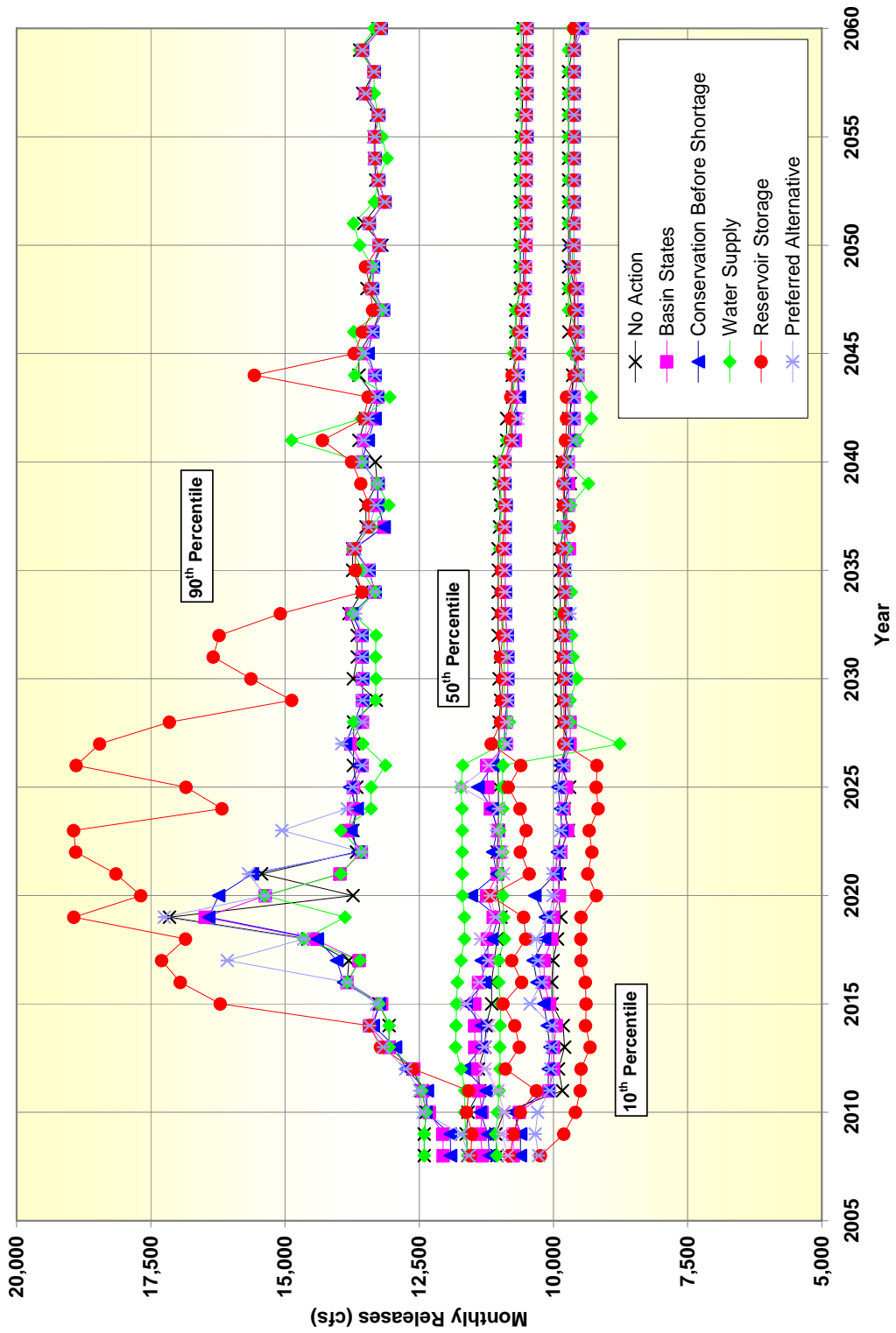


Figure P- BCR-32  
 Davis Dam January Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

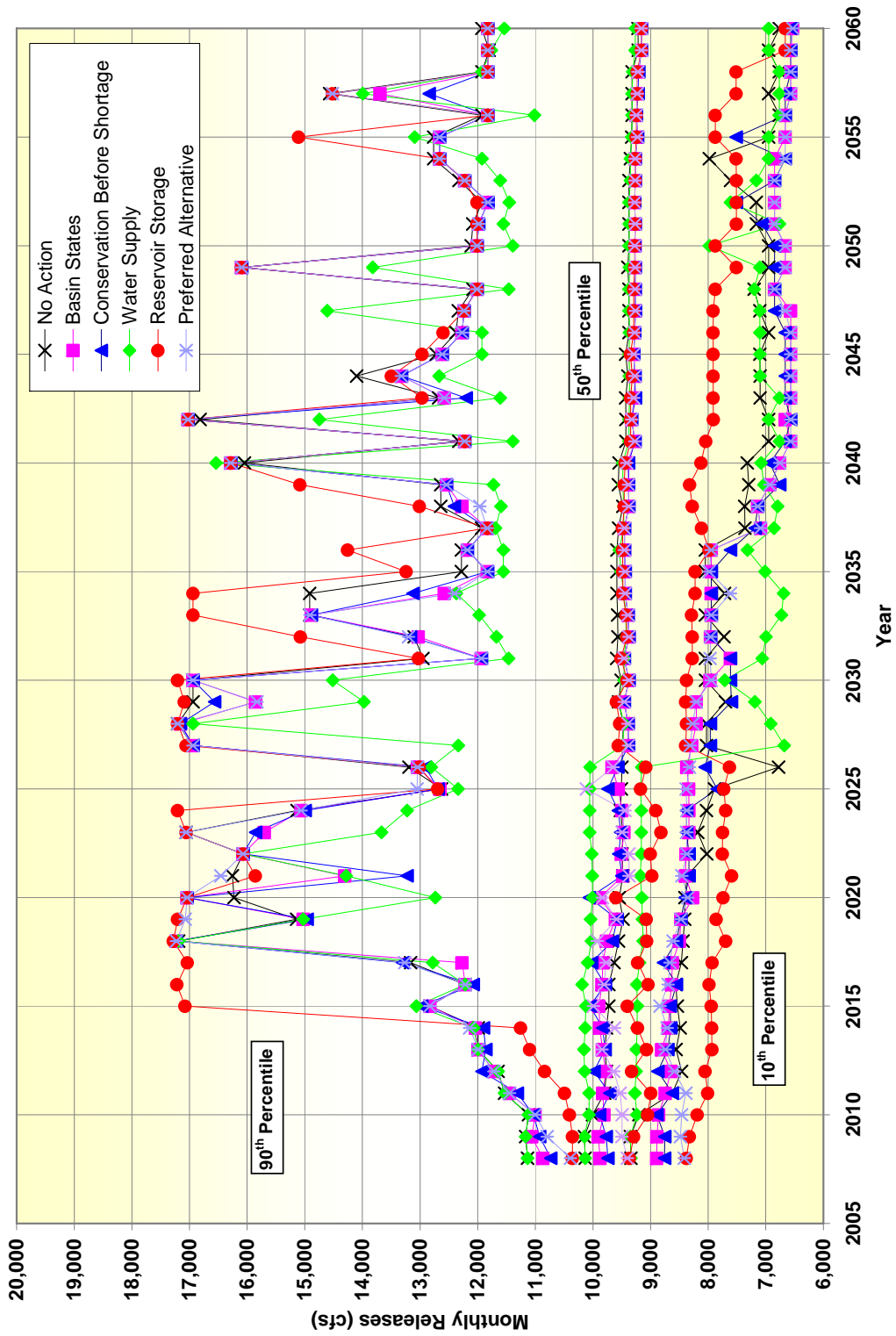


Figure P- BCR-33  
 Davis Dam February Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

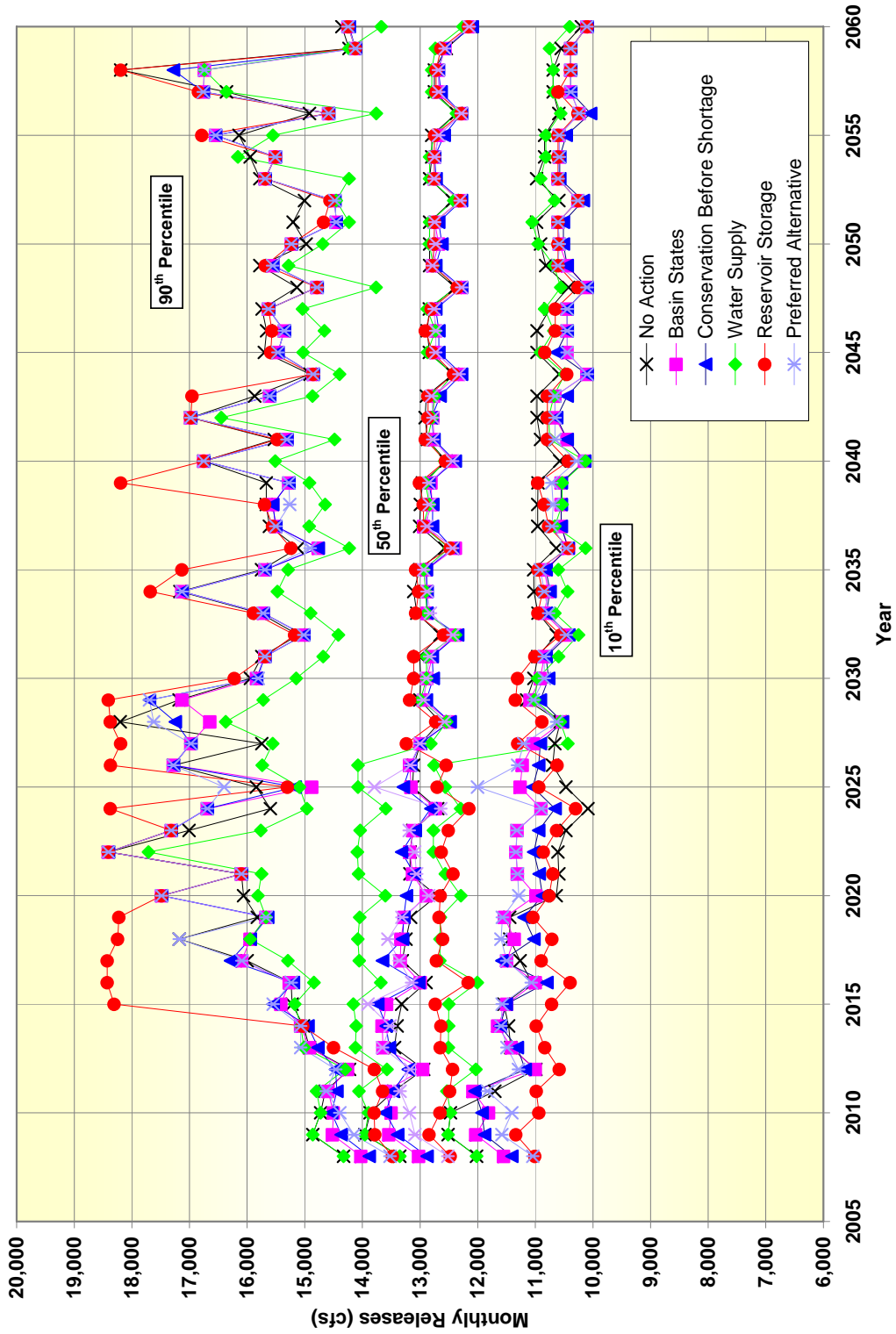


Figure P- BCR-34  
 Davis Dam March Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

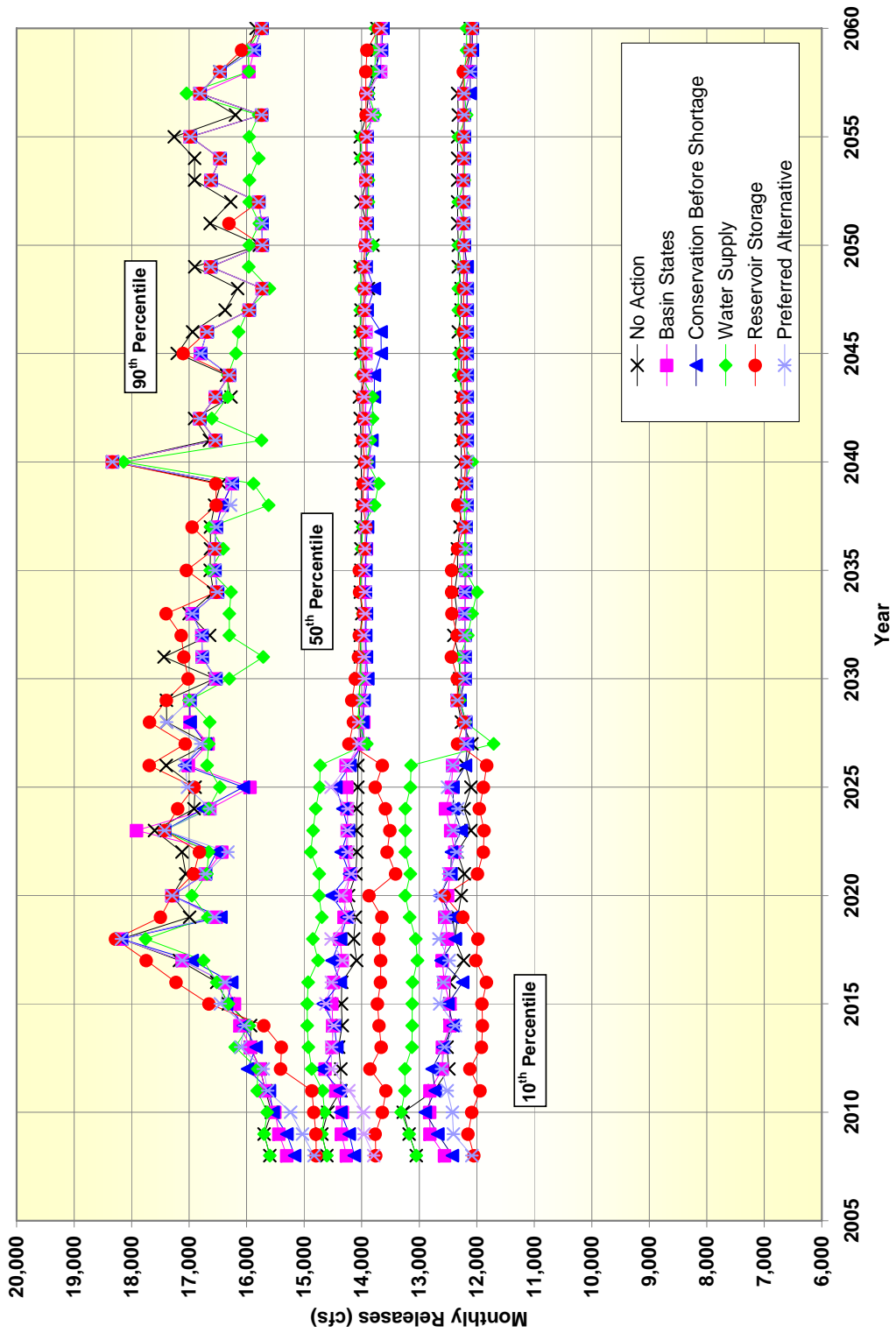


Figure P- BCR-35  
 Davis Dam April Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

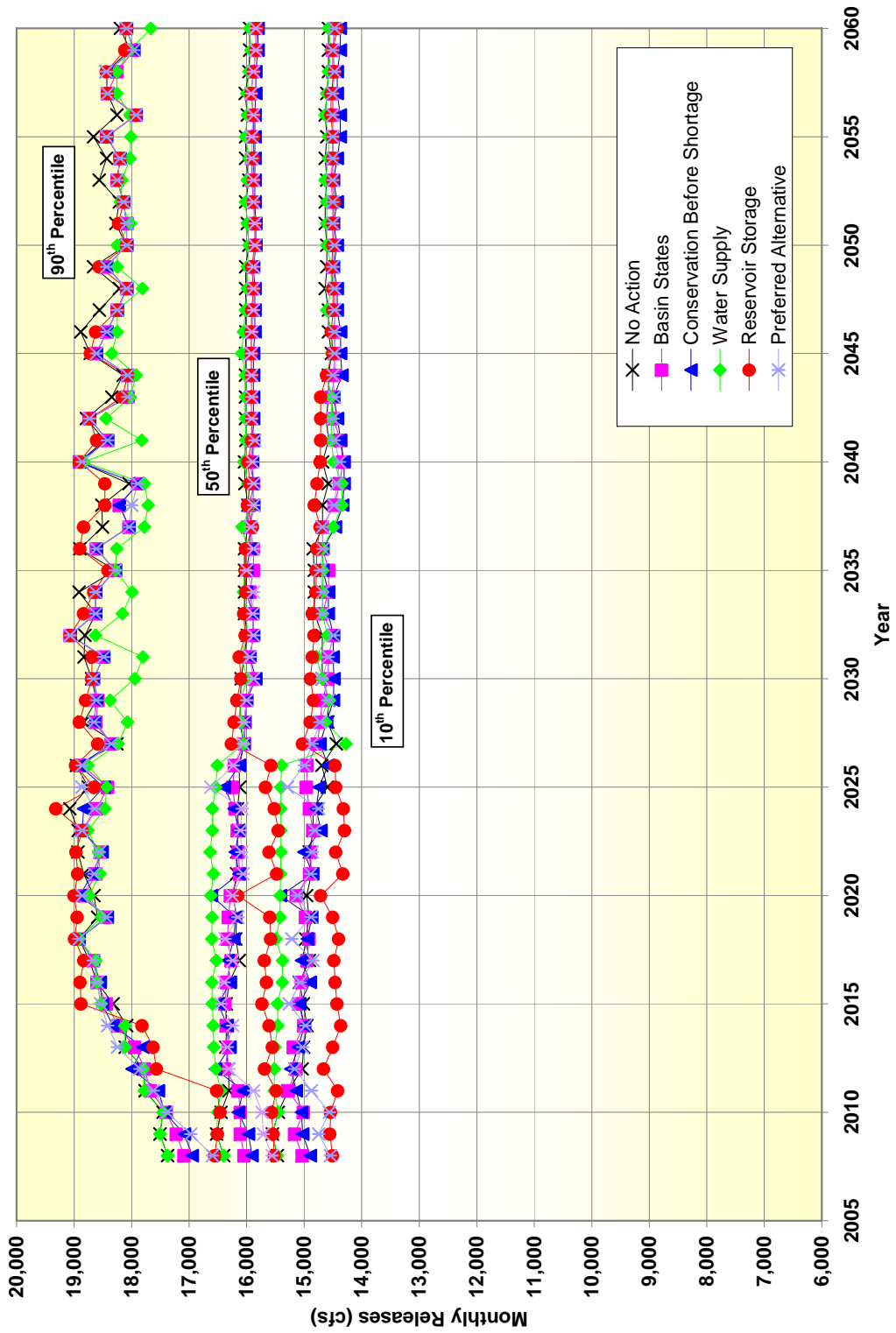


Figure P- BCR-36  
Davis Dam May Releases  
Comparison of Action Alternatives to No Action Alternative  
90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

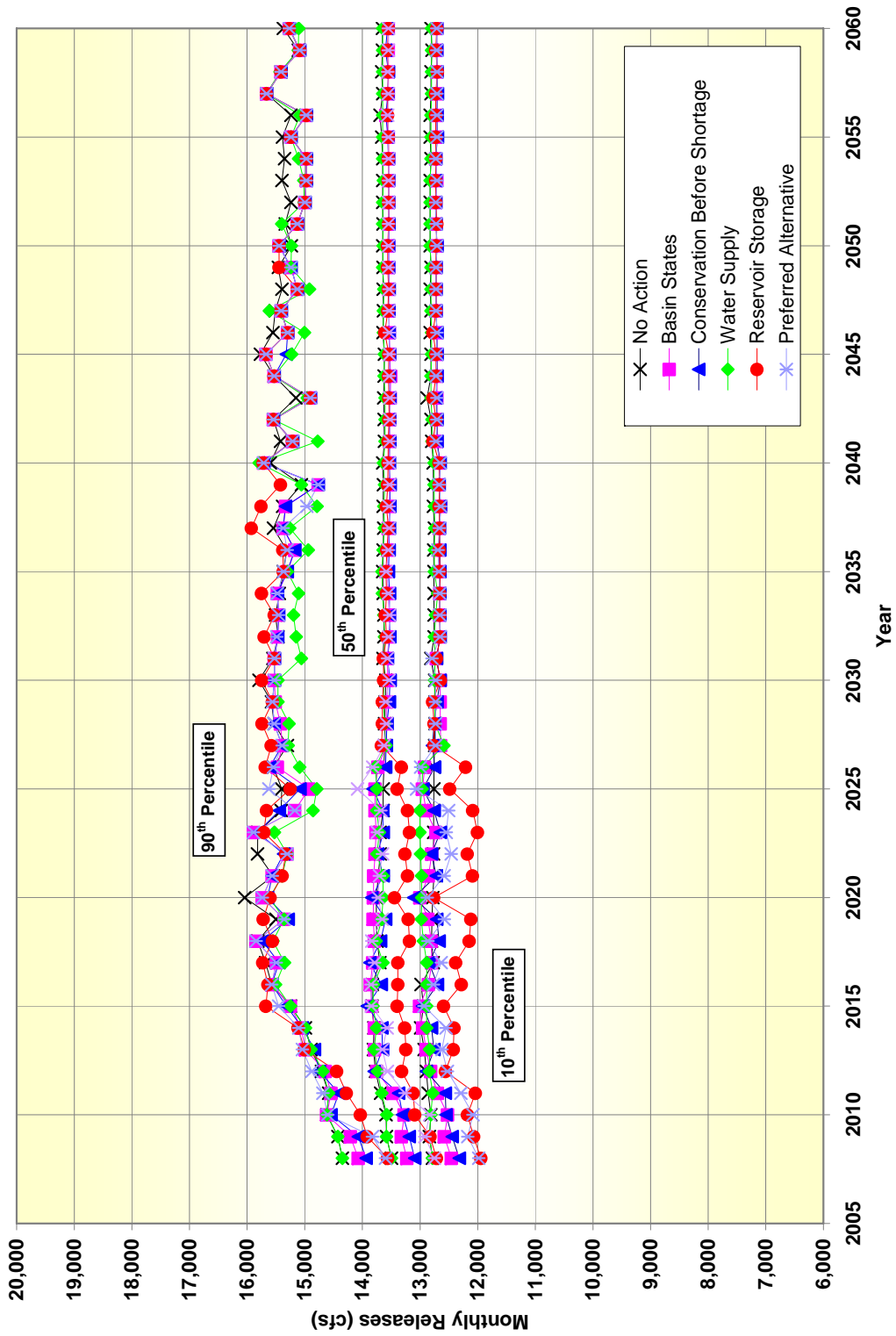


Figure P- BCR-37  
 Davis Dam June Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

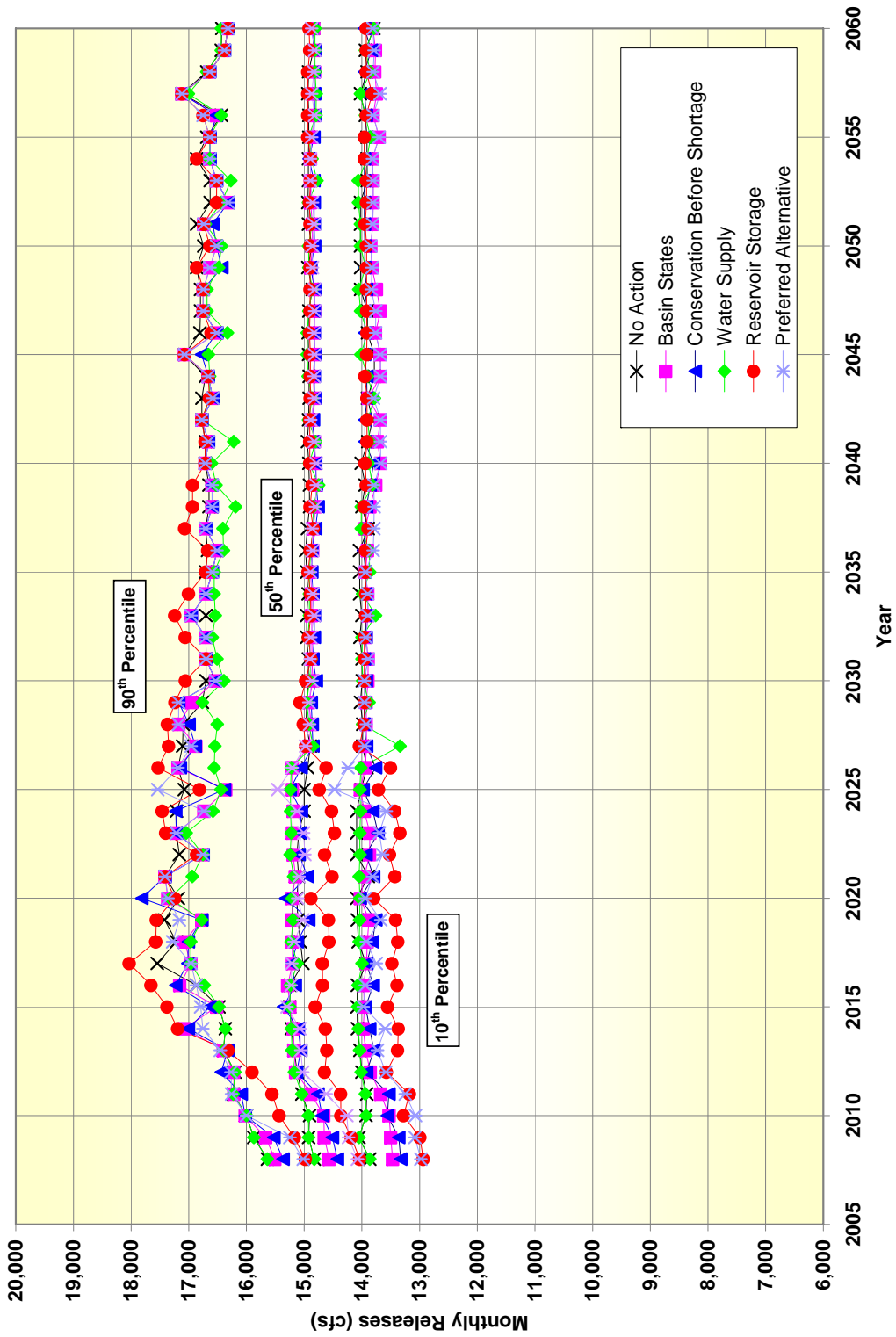


Figure P- BCR-38  
 Davis Dam July Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

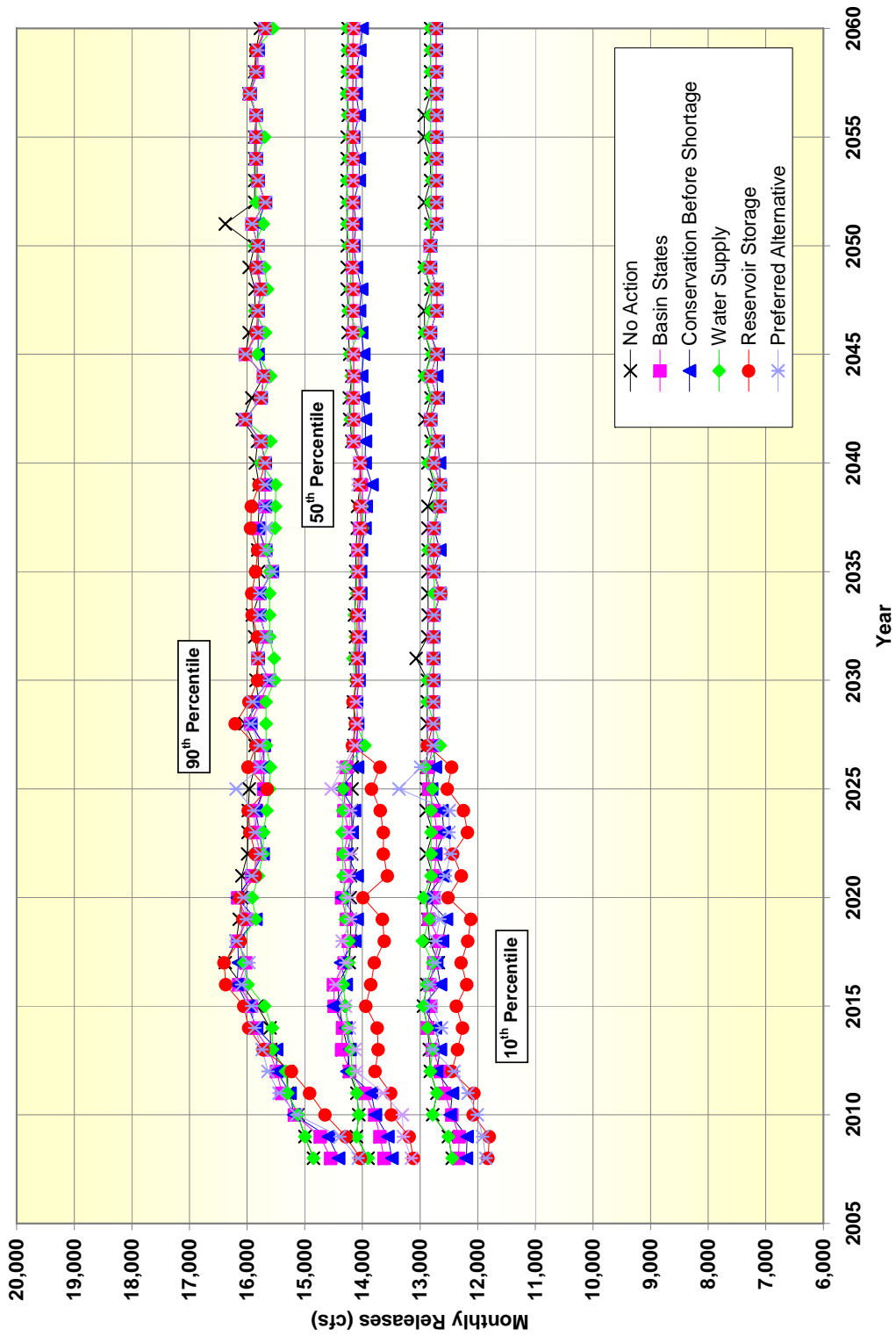




Figure P- BCR-39  
 Davis Dam August Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

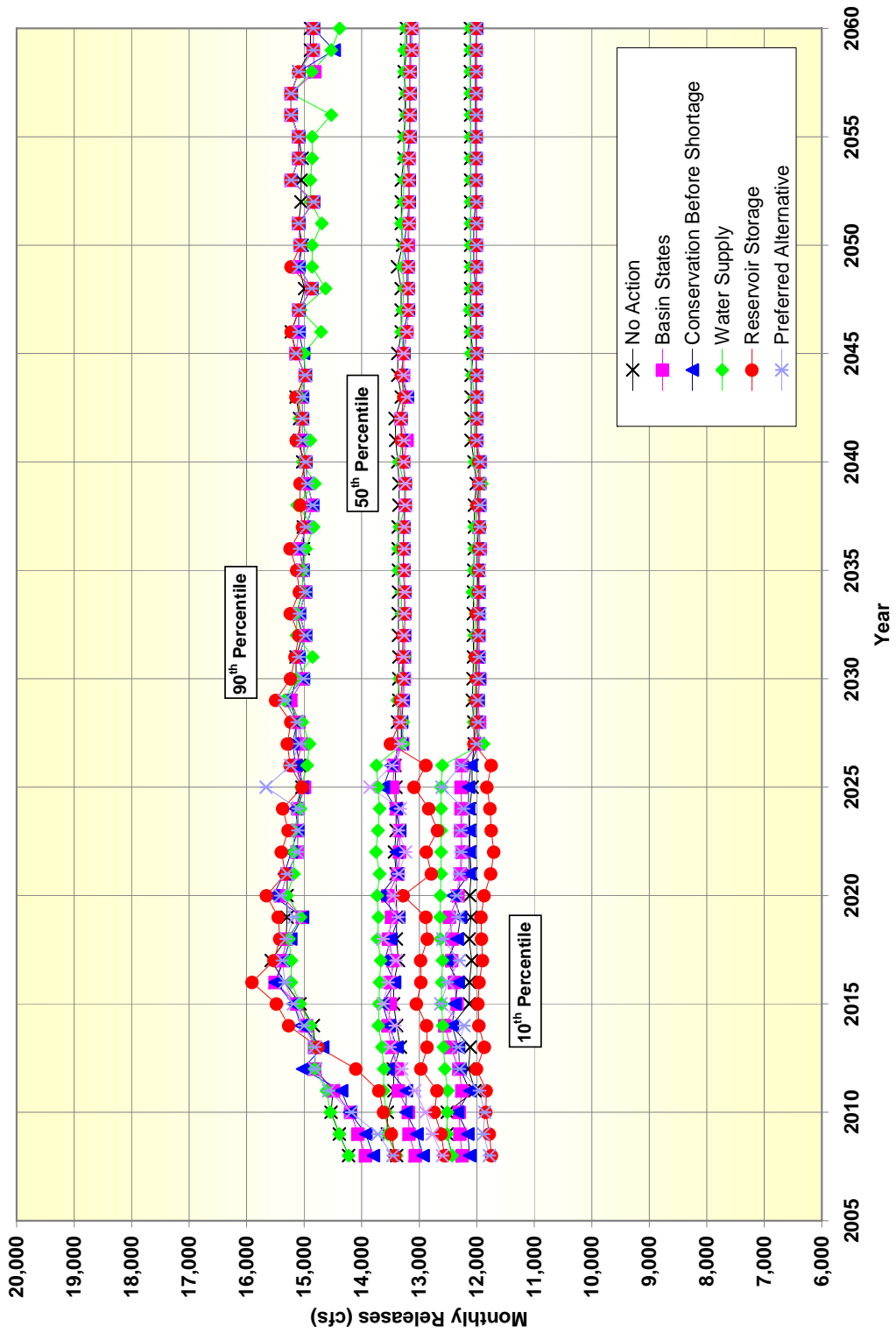


Figure P- BCR-40  
Davis Dam September Releases  
Comparison of Action Alternatives to No Action Alternative  
90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

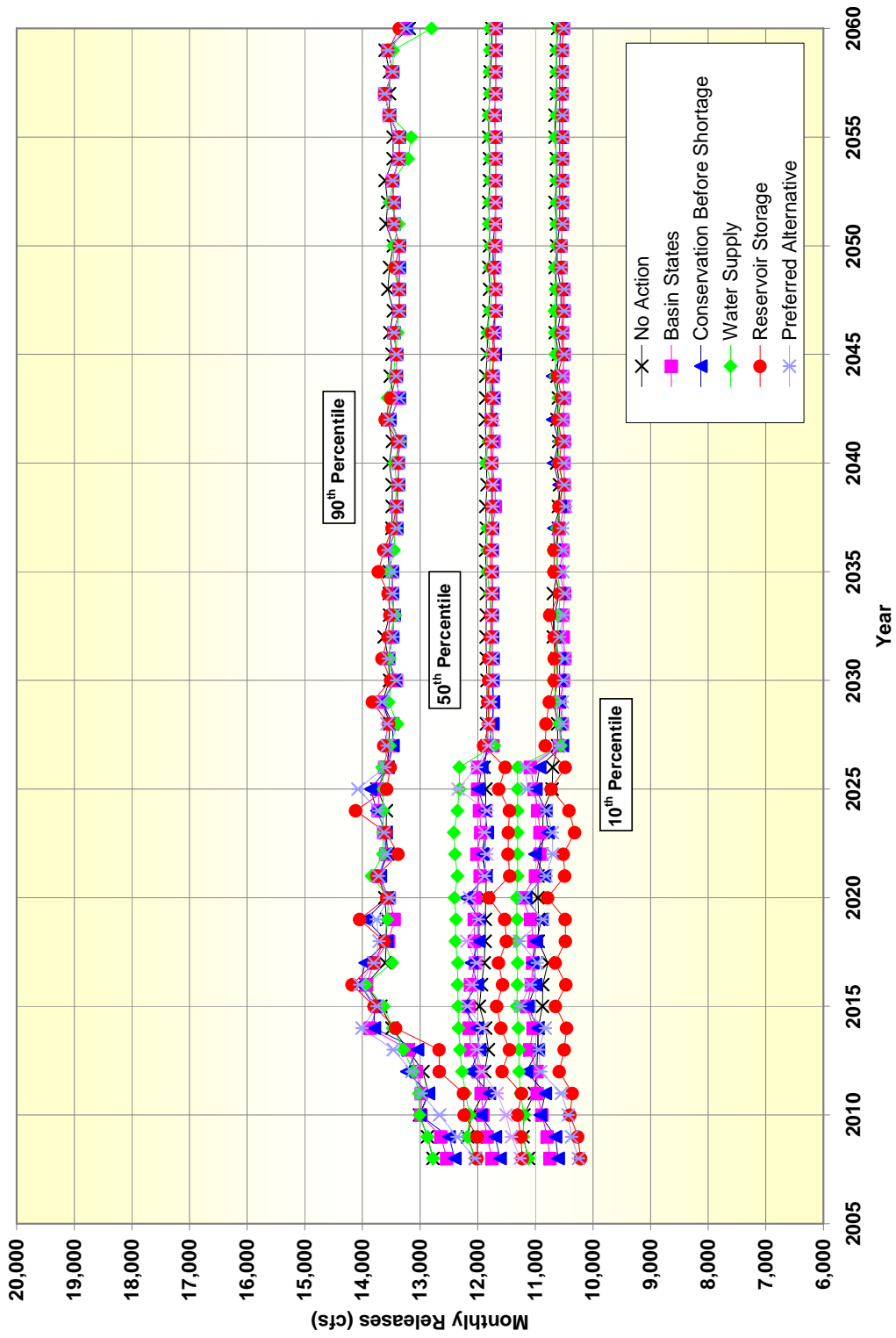


Figure P- BCR-41  
 Davis Dam October Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

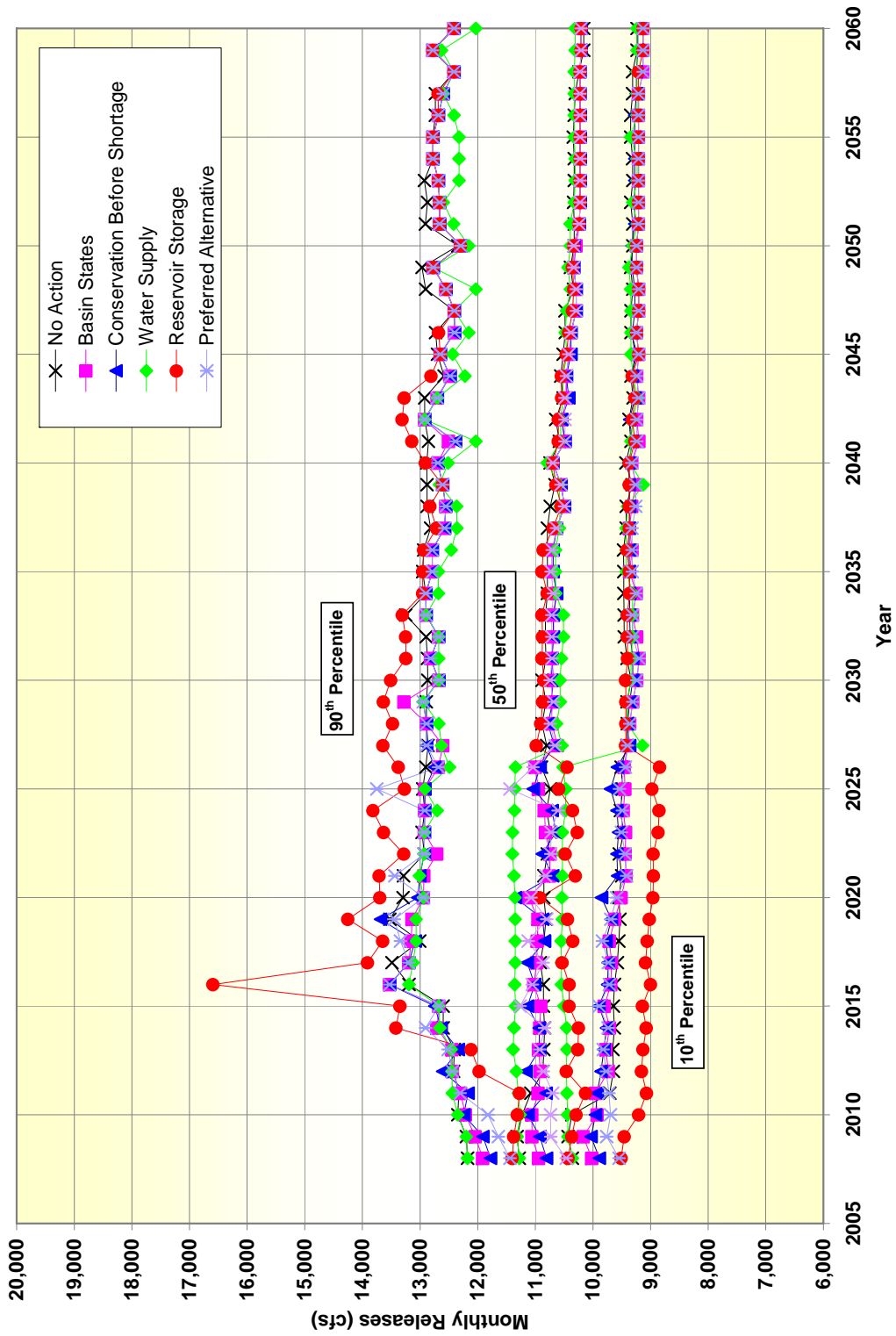


Figure P- BCR-42  
Davis Dam November Releases  
Comparison of Action Alternatives to No Action Alternative  
90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

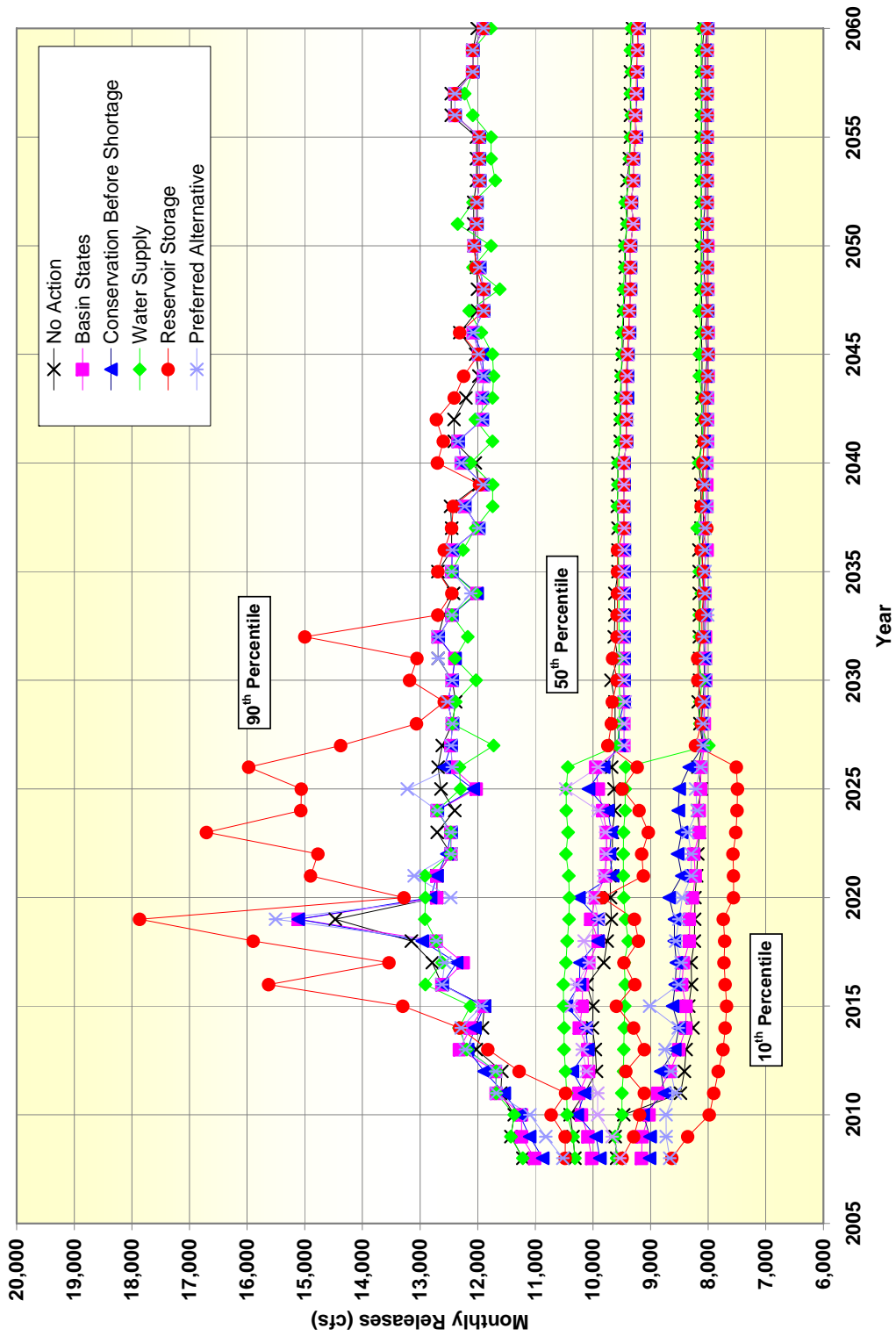


Figure P- BCR-43  
 Davis Dam December Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

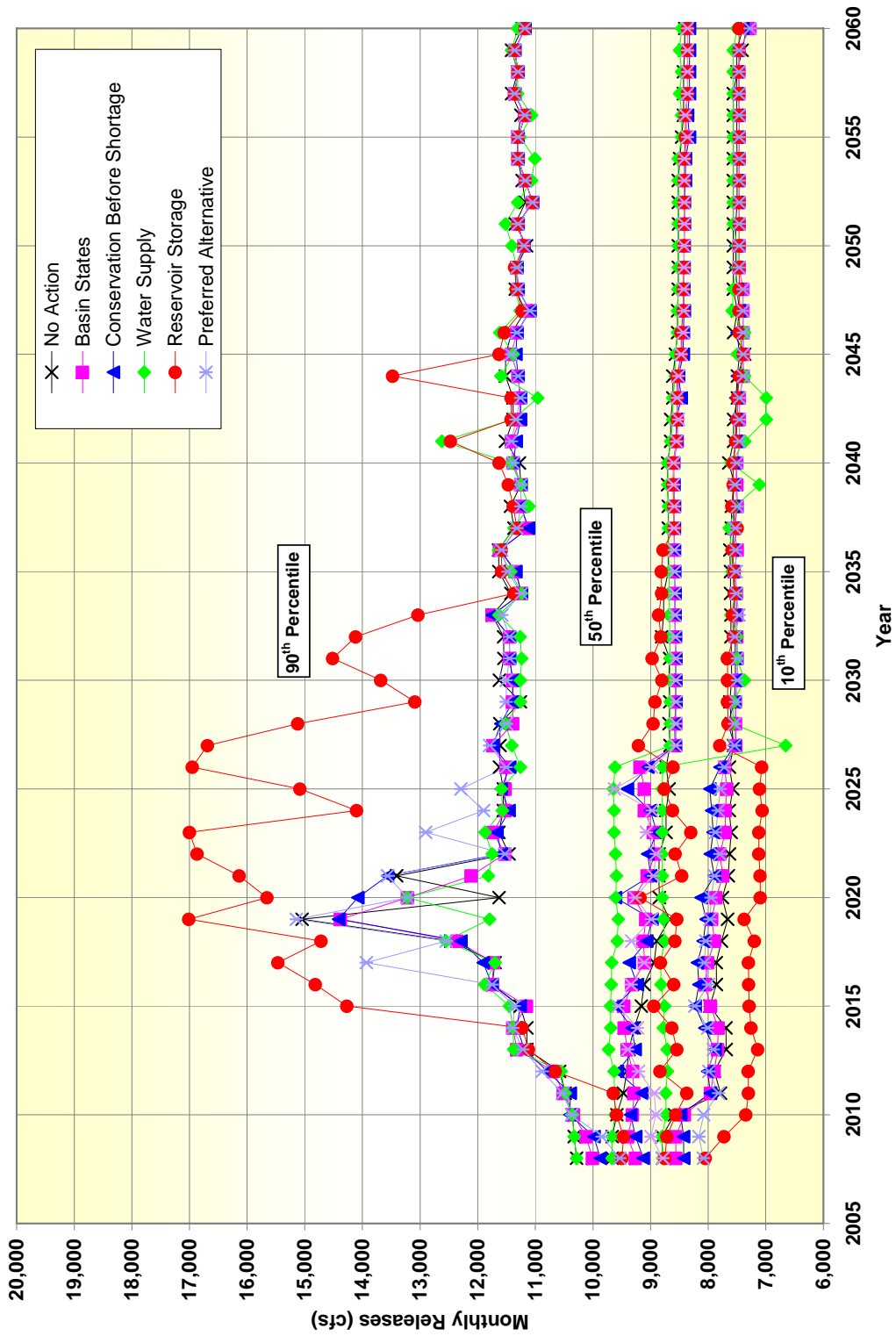


Figure P- BCR-44  
Parker Dam January Releases  
Comparison of Action Alternatives to No Action Alternative  
90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

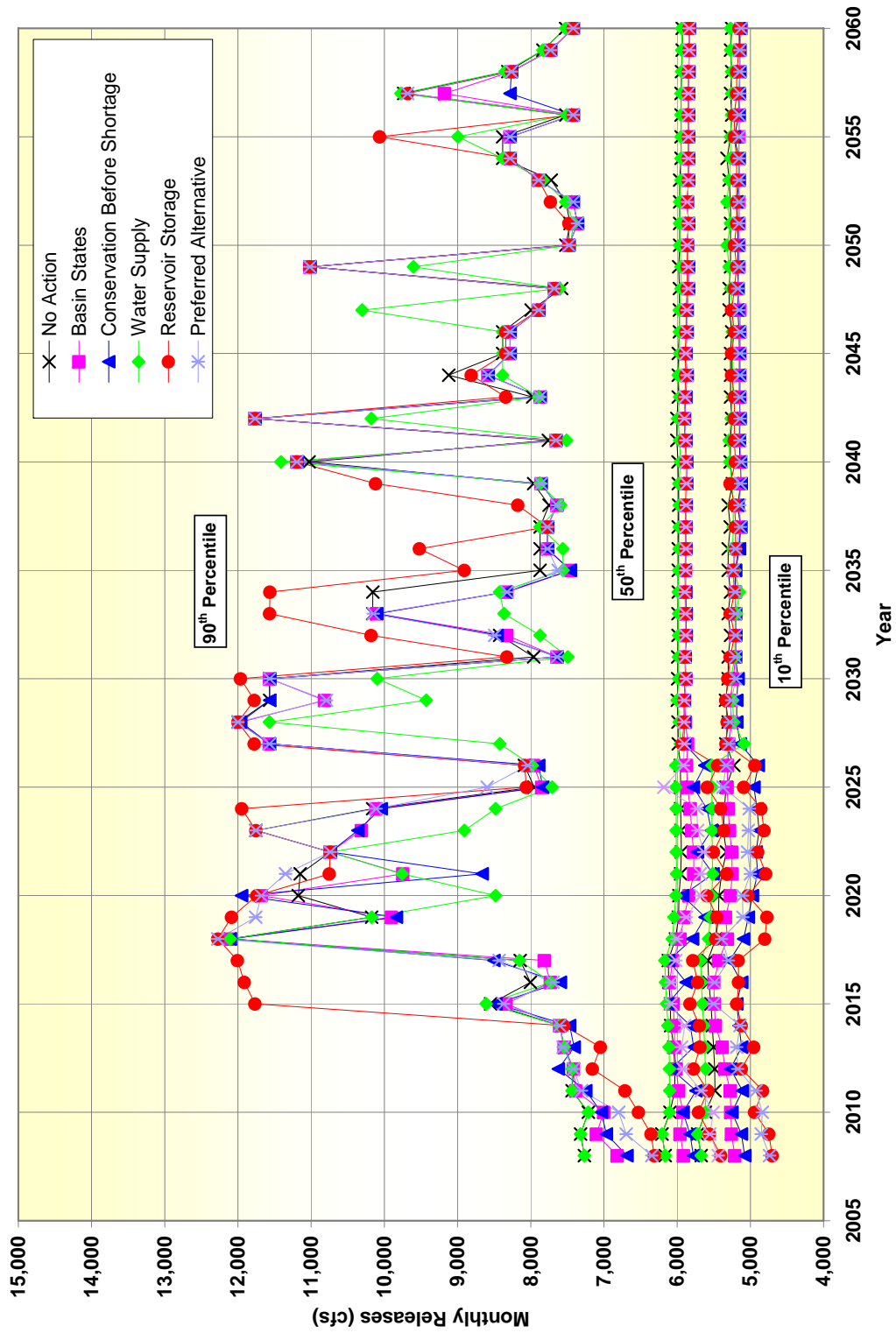


Figure P- BCR-45  
 Parker Dam February Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

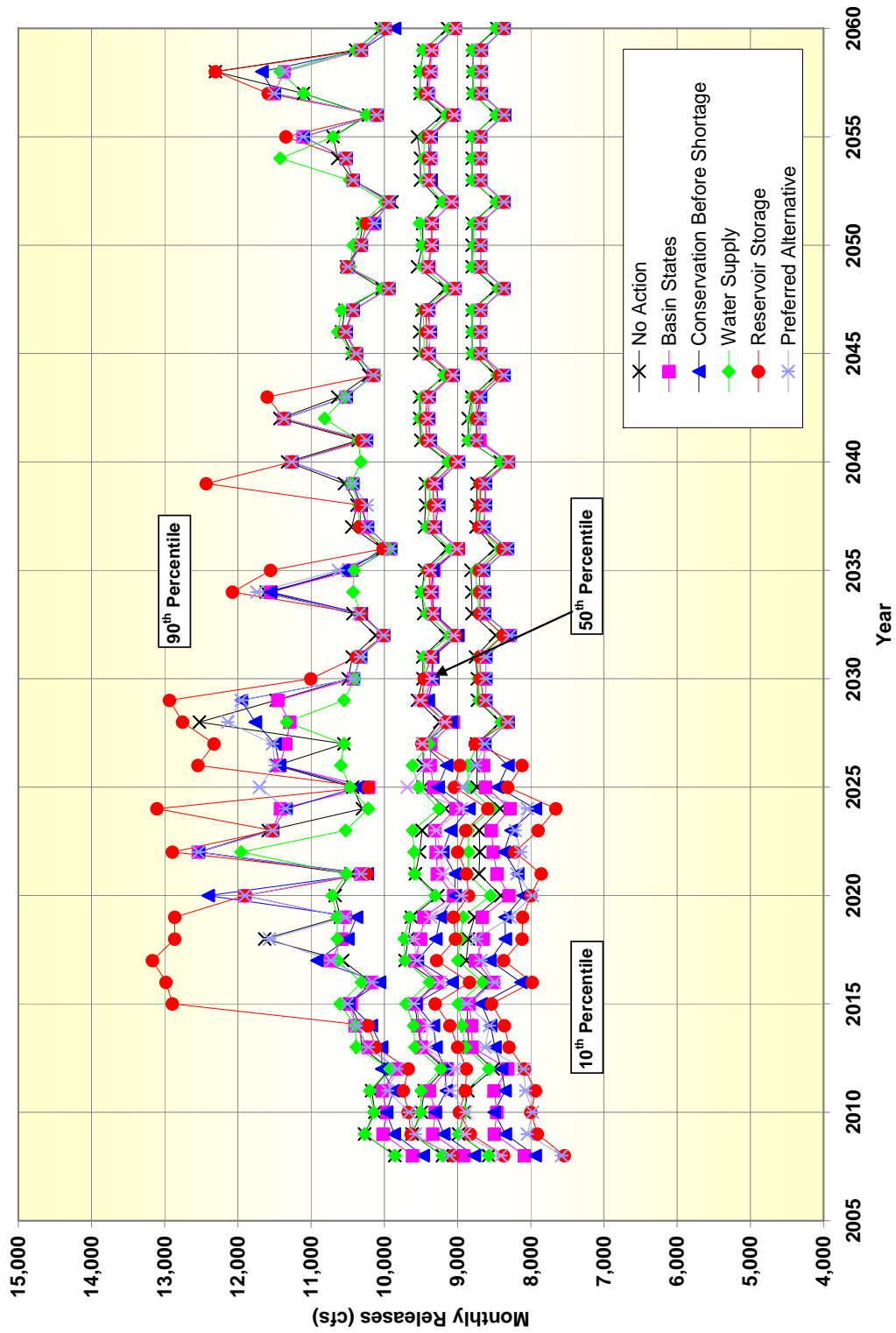


Figure P- BCR-46  
 Parker Dam March Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

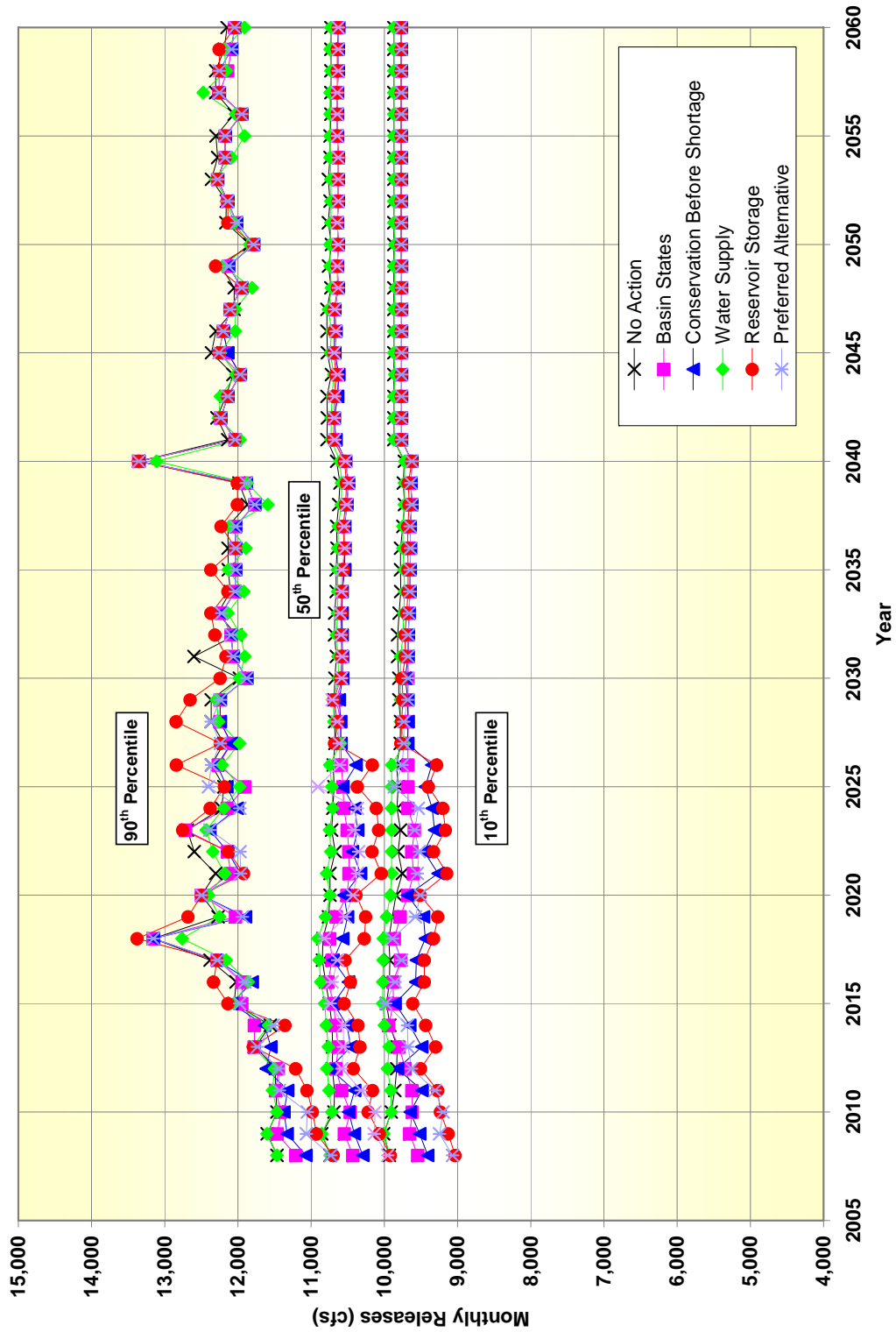




Figure P- BCR-47  
 Parker Dam April Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

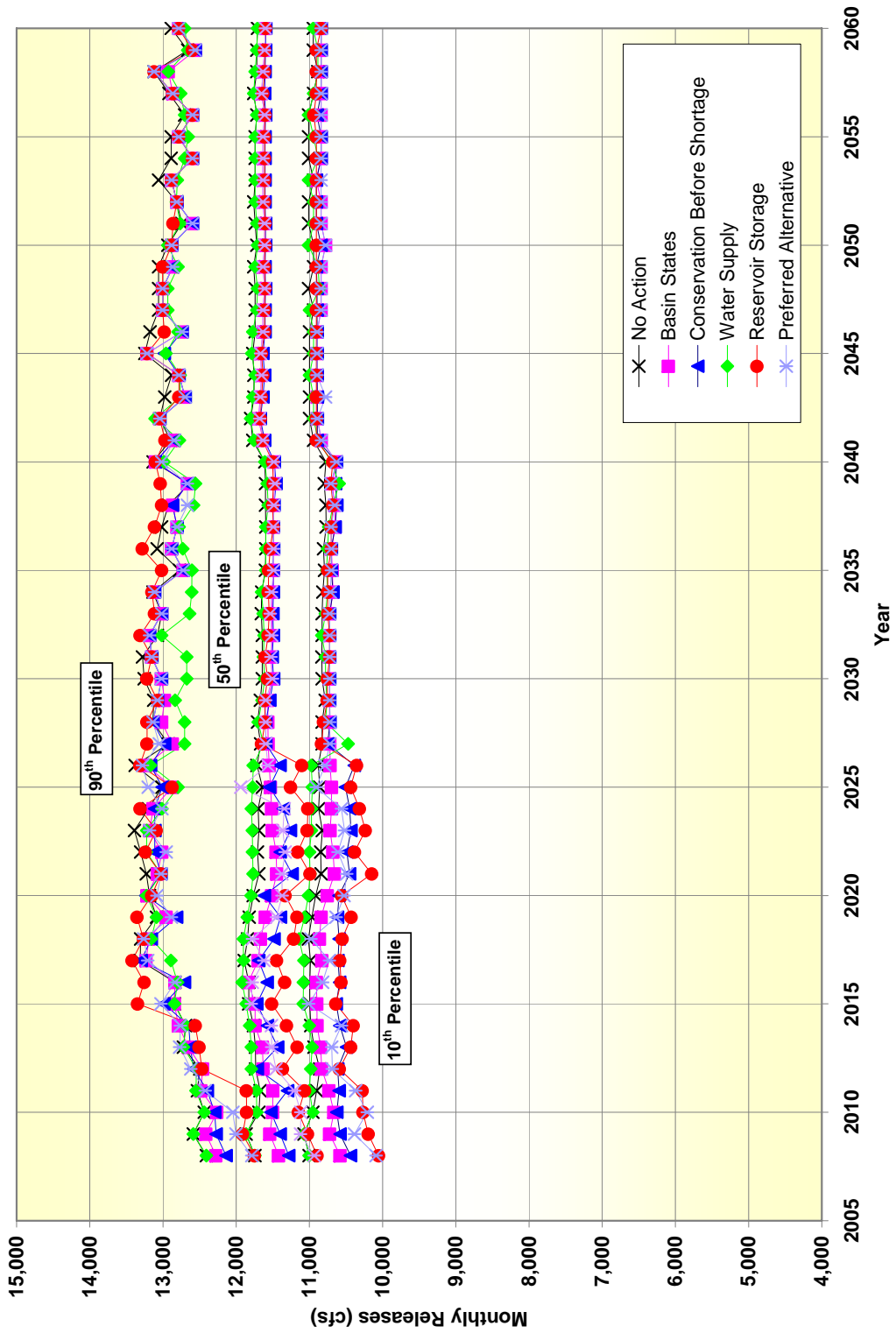


Figure P- BCR-48  
Parker Dam May Releases  
Comparison of Action Alternatives to No Action Alternative  
90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

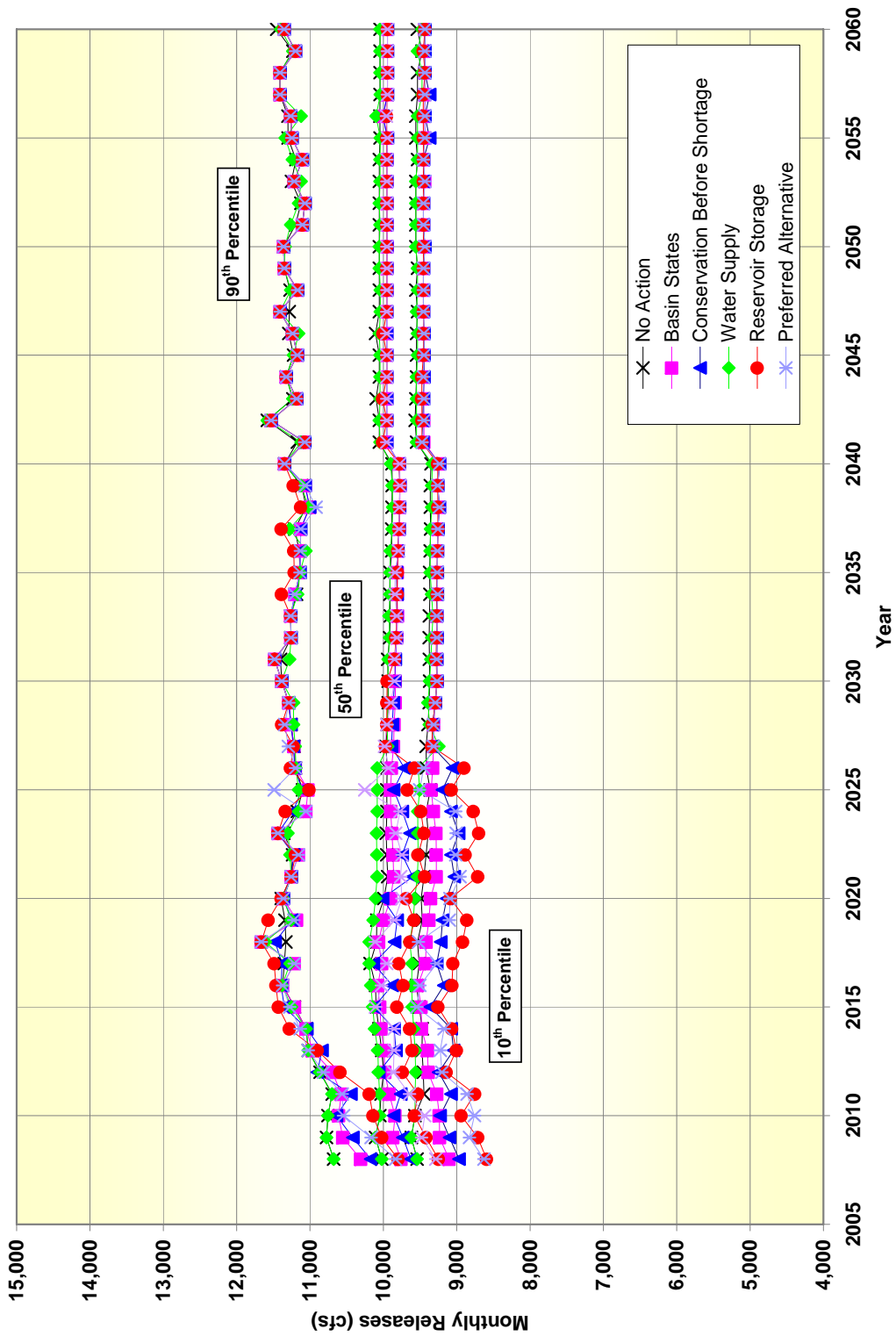


Figure P- BCR-49  
 Parker Dam June Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

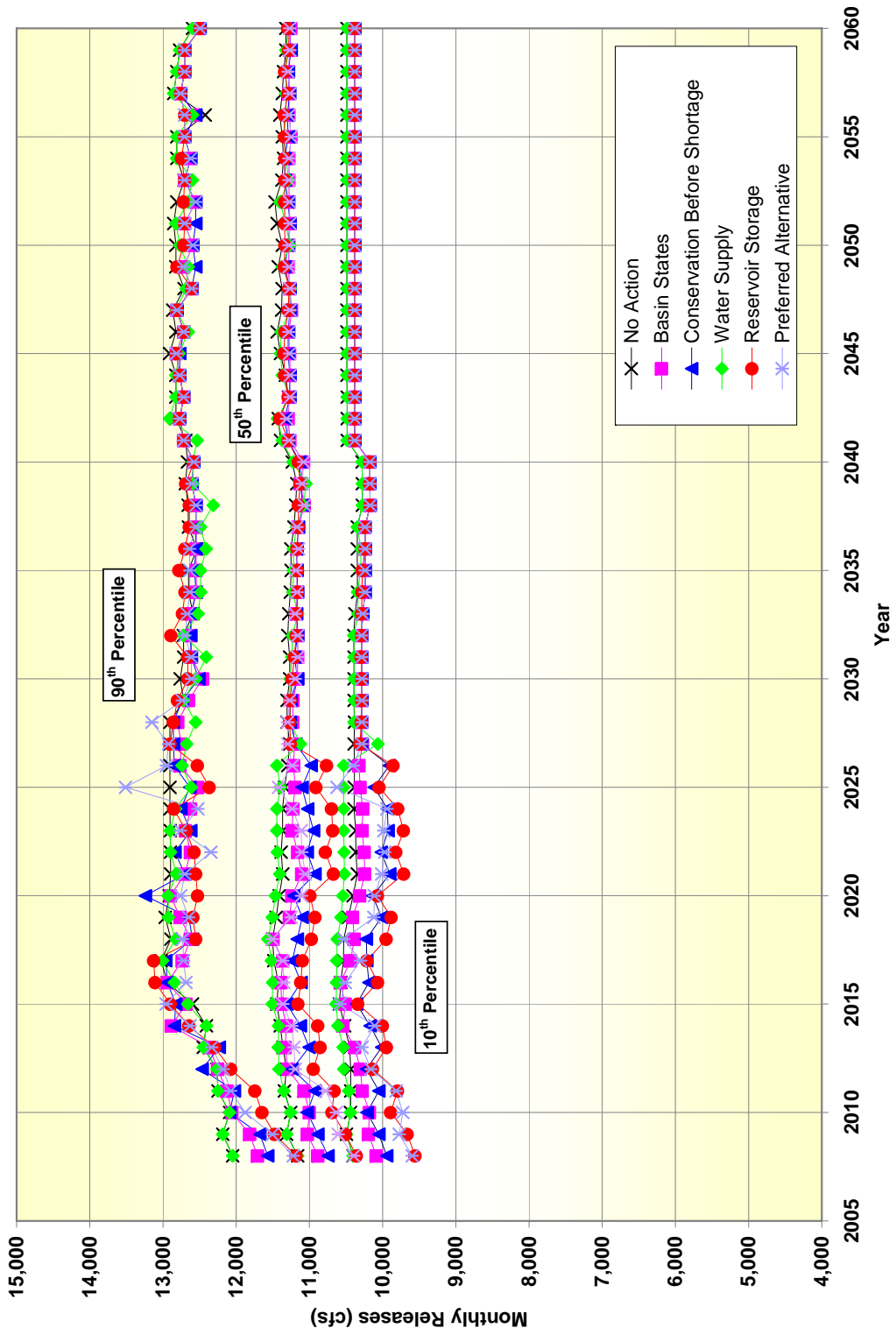


Figure P- BCR-50  
 Parker Dam July Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

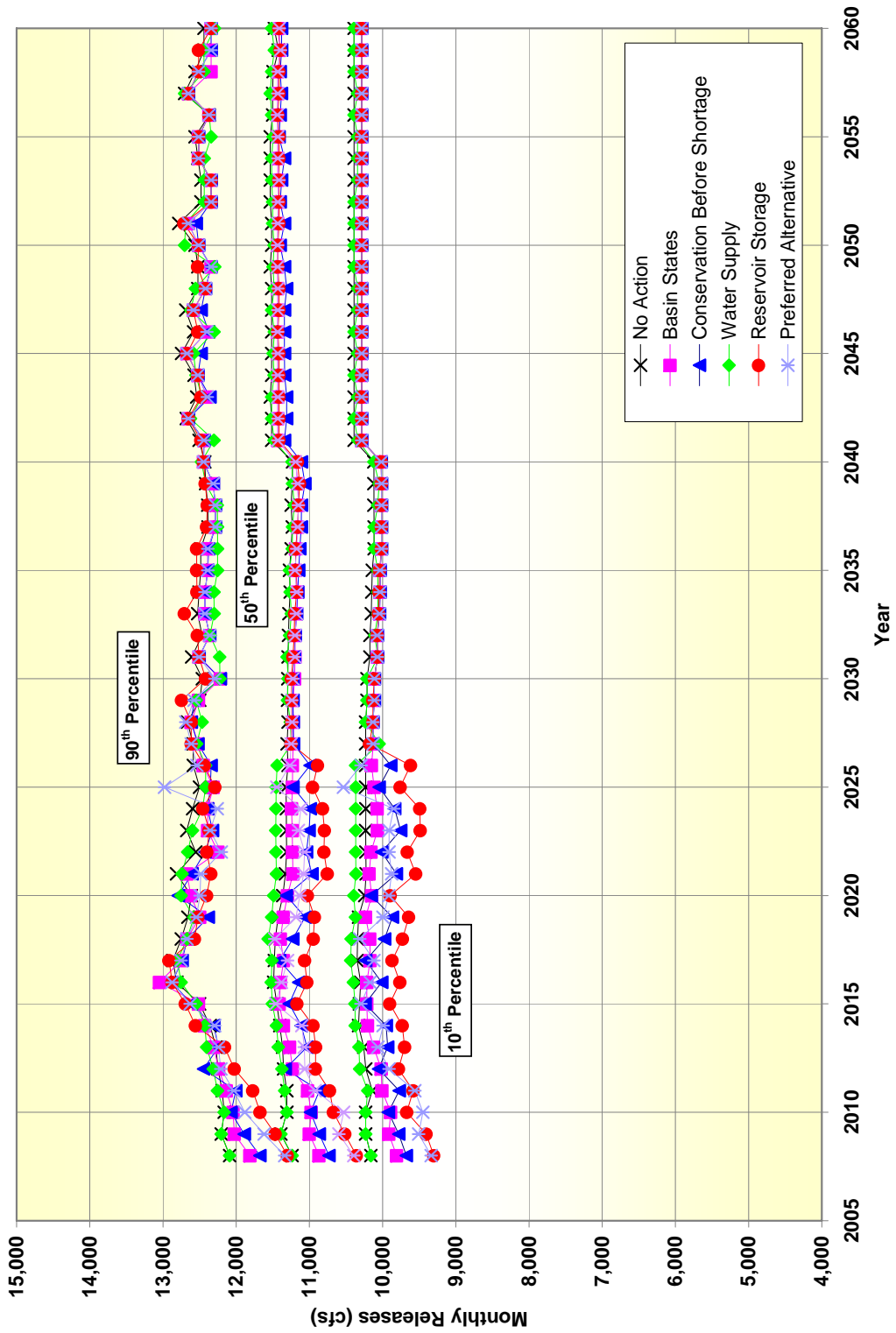


Figure P- BCR-51  
 Parker Dam August Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

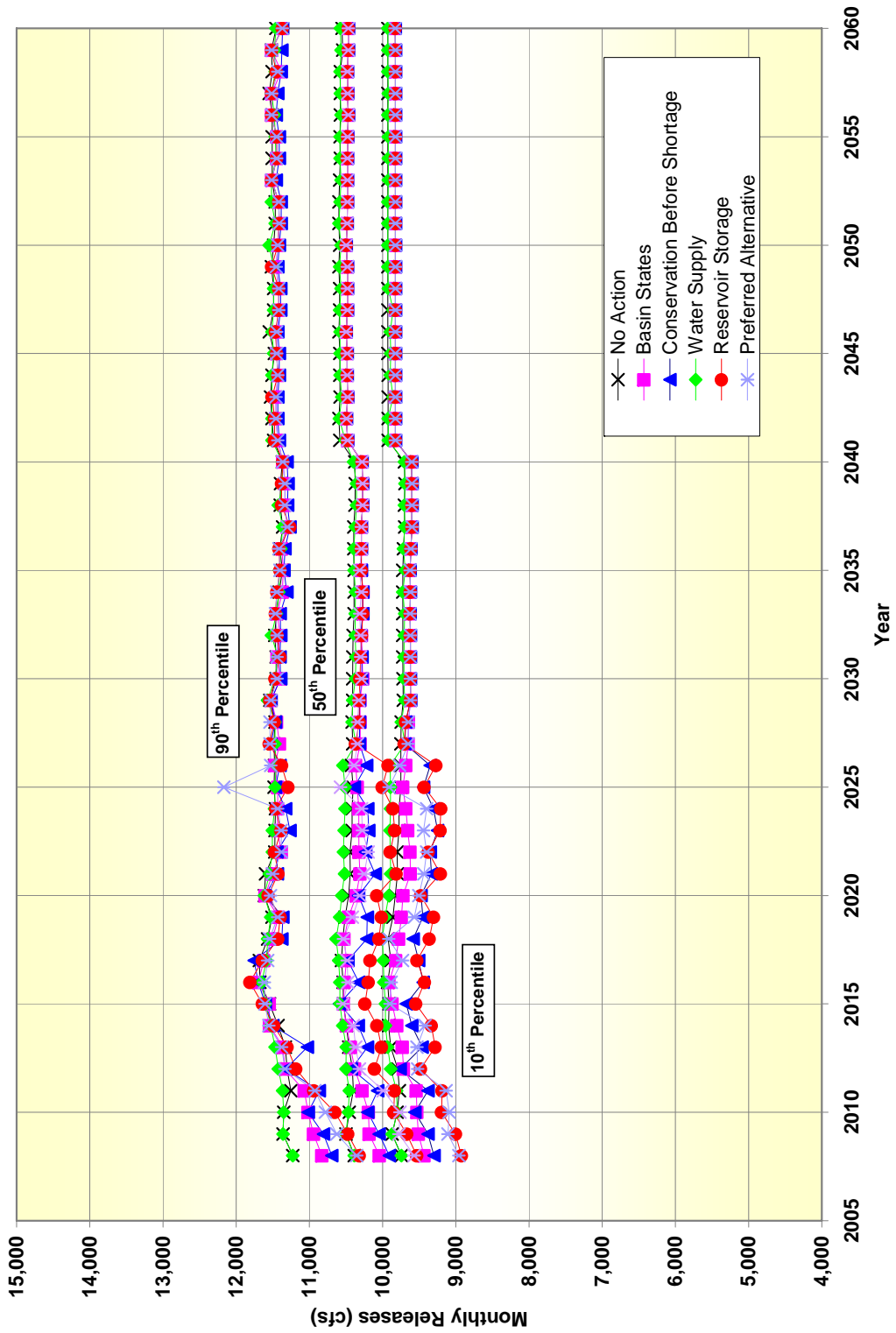


Figure P- BCR-52  
Parker Dam September Releases  
Comparison of Action Alternatives to No Action Alternative  
90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

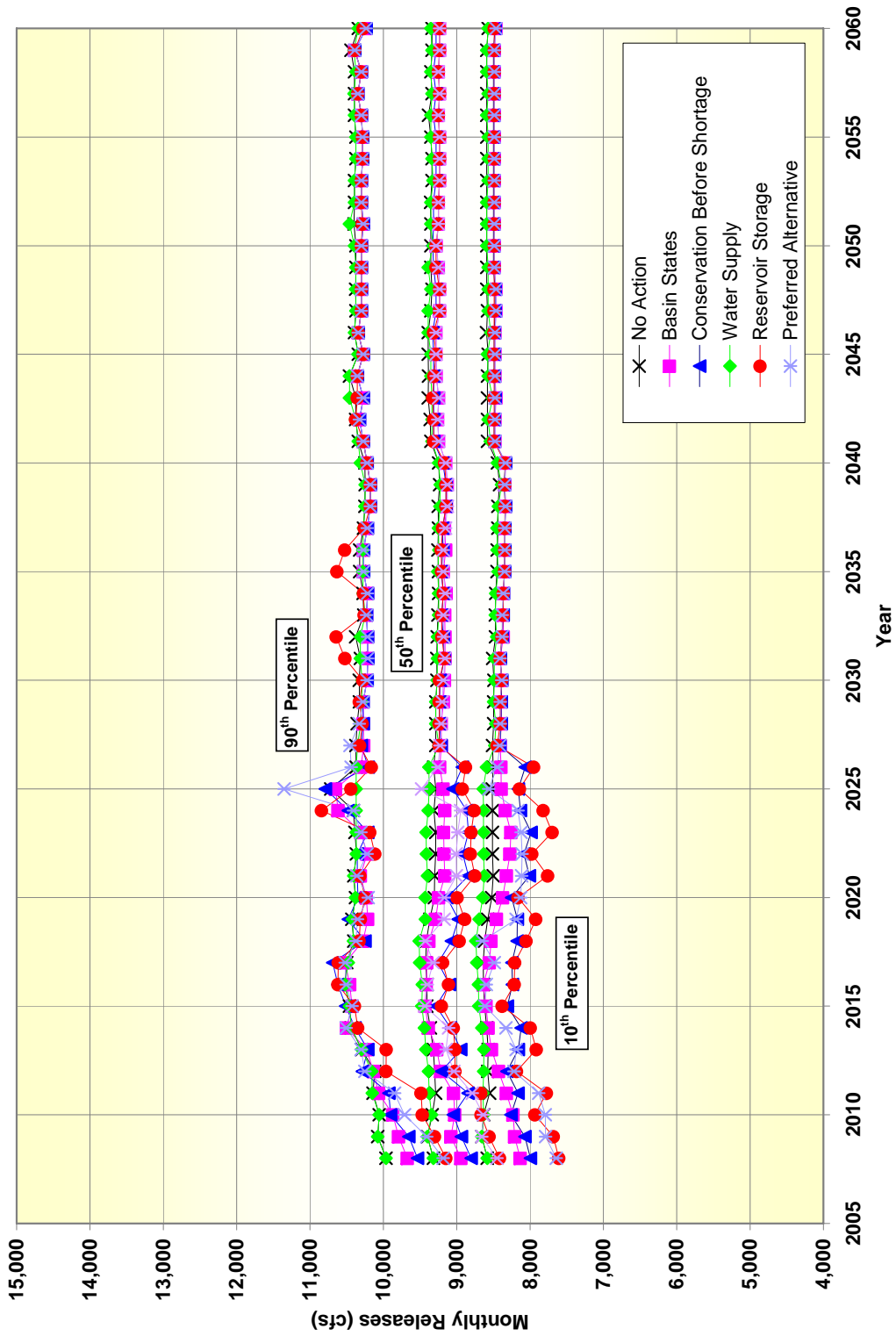


Figure P- BCR-53  
 Parker Dam October Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

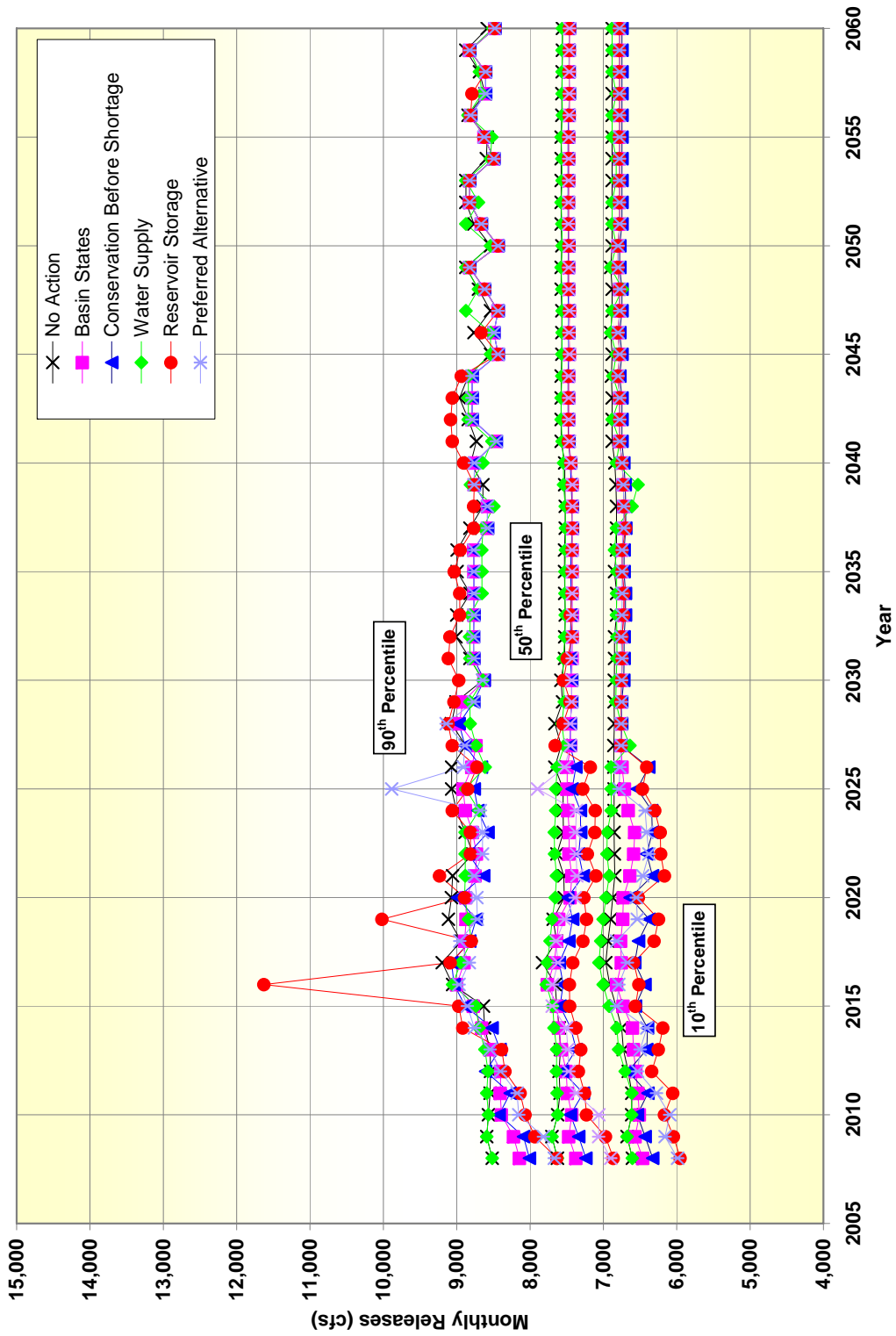


Figure P- BCR-54  
 Parker Dam November Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

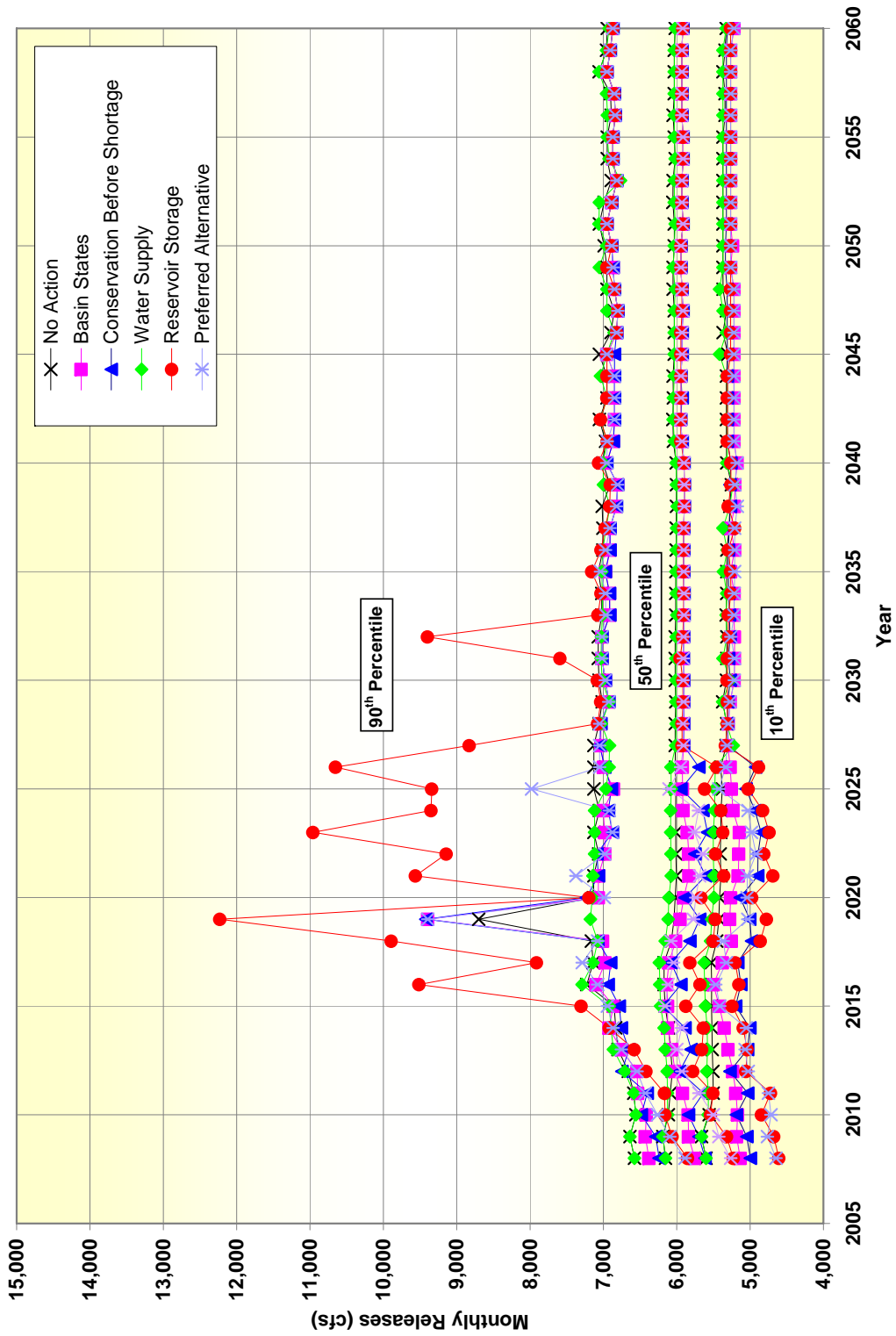




Figure P- BCR-55  
 Parker Dam December Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

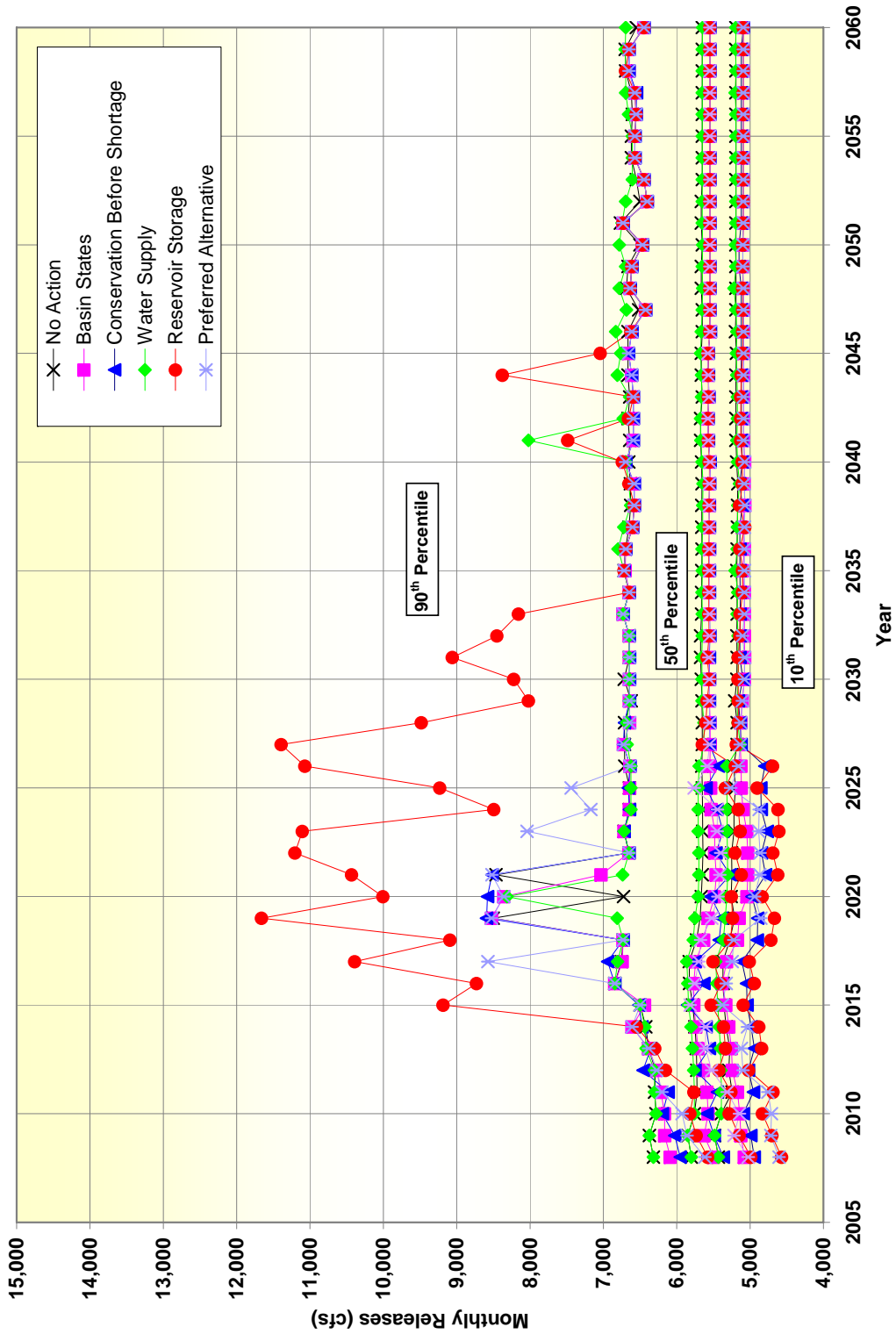


Figure P- BCR-56  
 Flows Downstream of Morelos Diversion Dam  
 Comparison of Action Alternatives to No Action Alternative  
 Probability of Occurrence

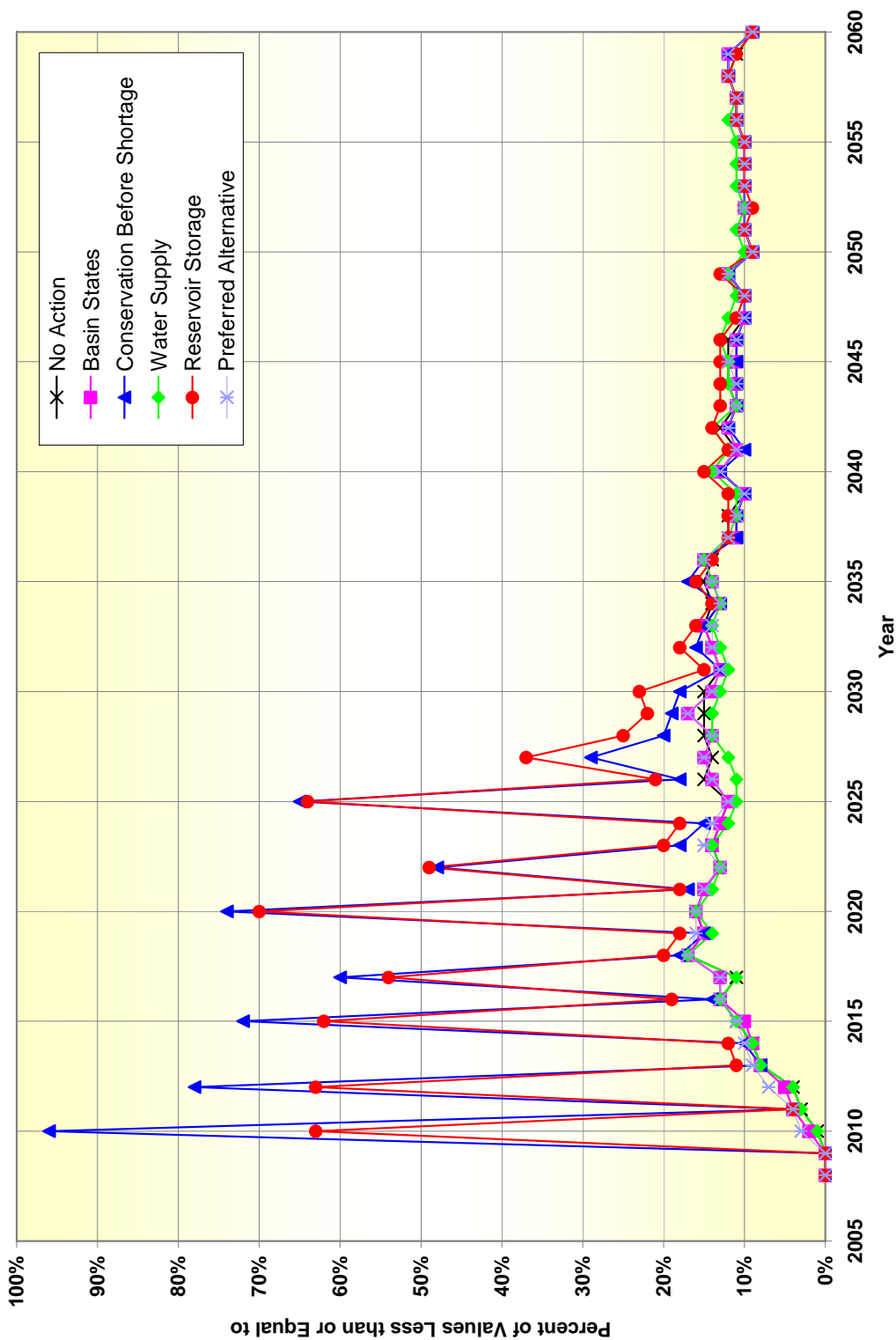


Figure P-BCR-57  
 Lake Powell End-of-July Elevations  
 Comparison of Action Alternatives to No Action Alternative  
 Percent of Values Greater than or Equal to Elevation 3,660 feet msl

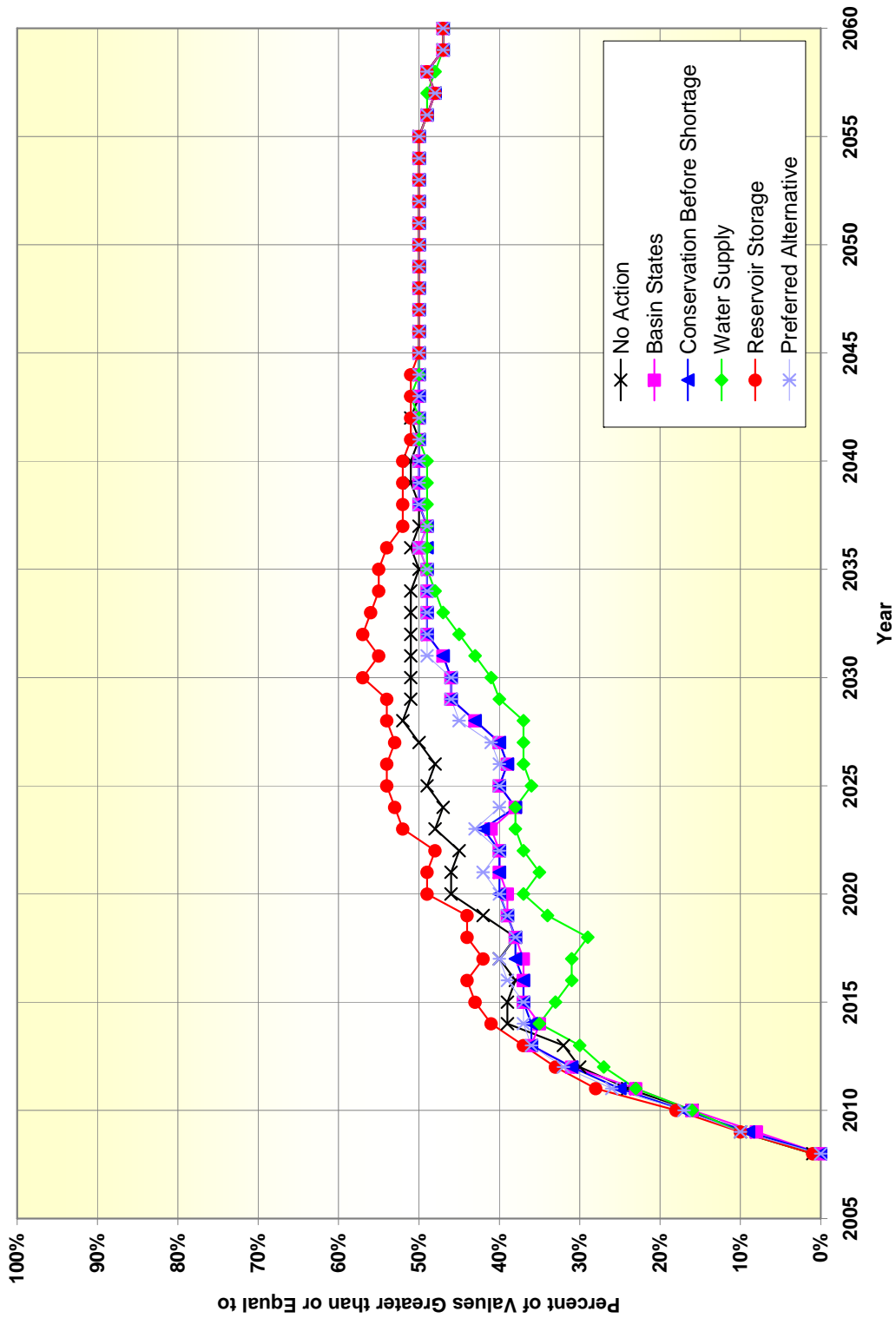


Figure P- BCR-58  
 Glen Canyon Dam Release Temperatures  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

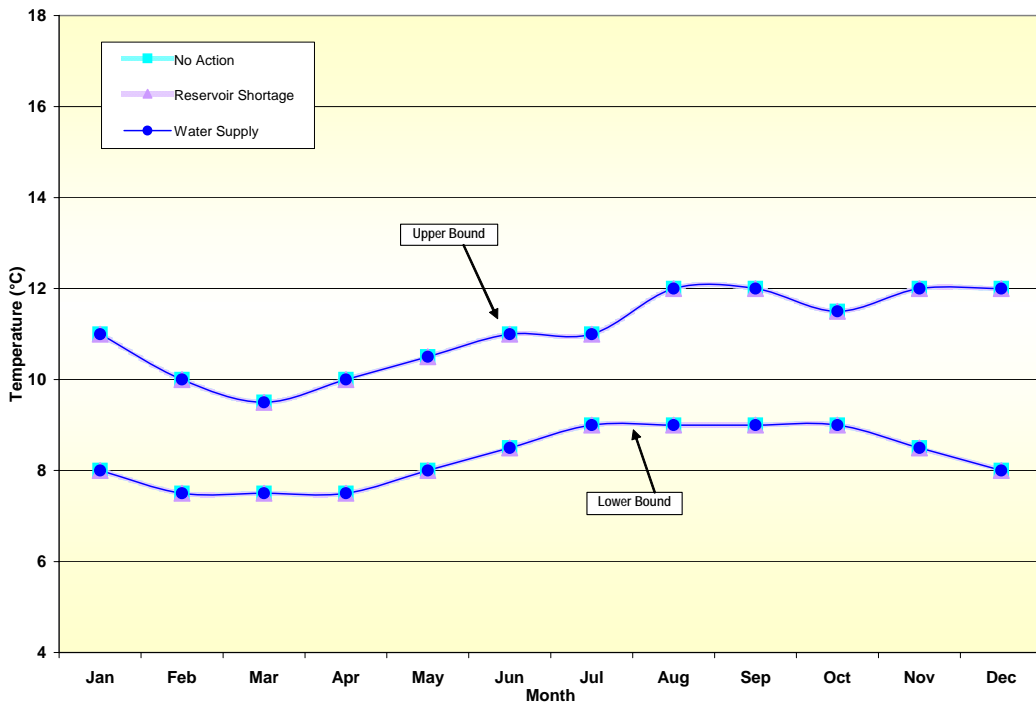
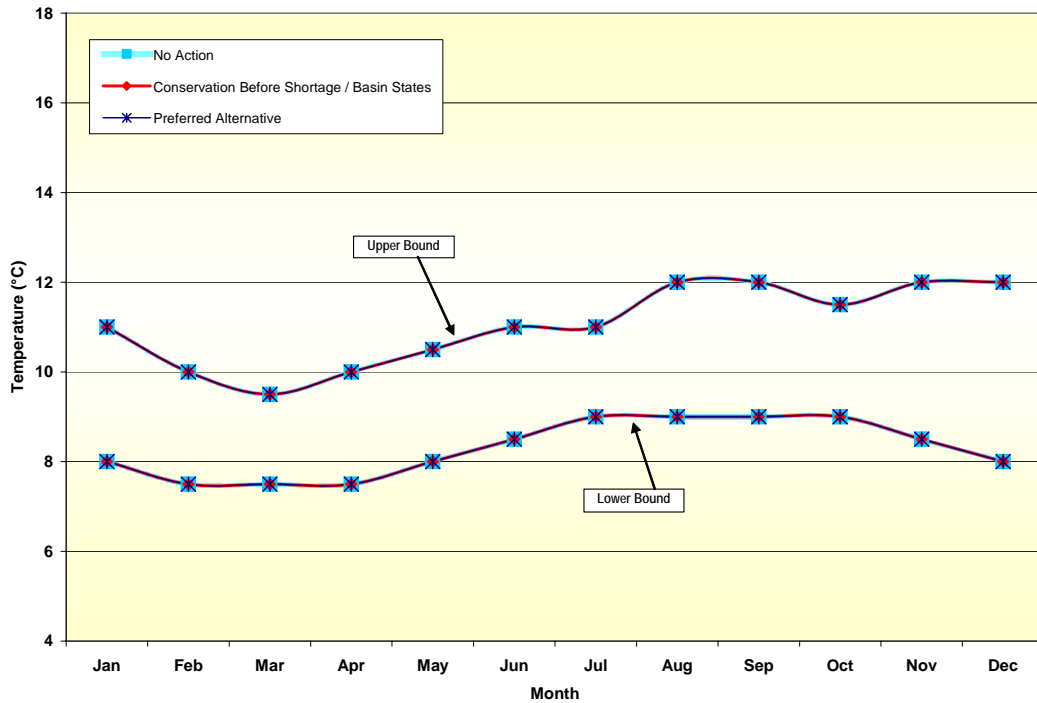


Figure P- BCR-59  
 Glen Canyon Dam Release Temperatures  
 Comparison of Action Alternatives to No Action Alternative  
 50<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

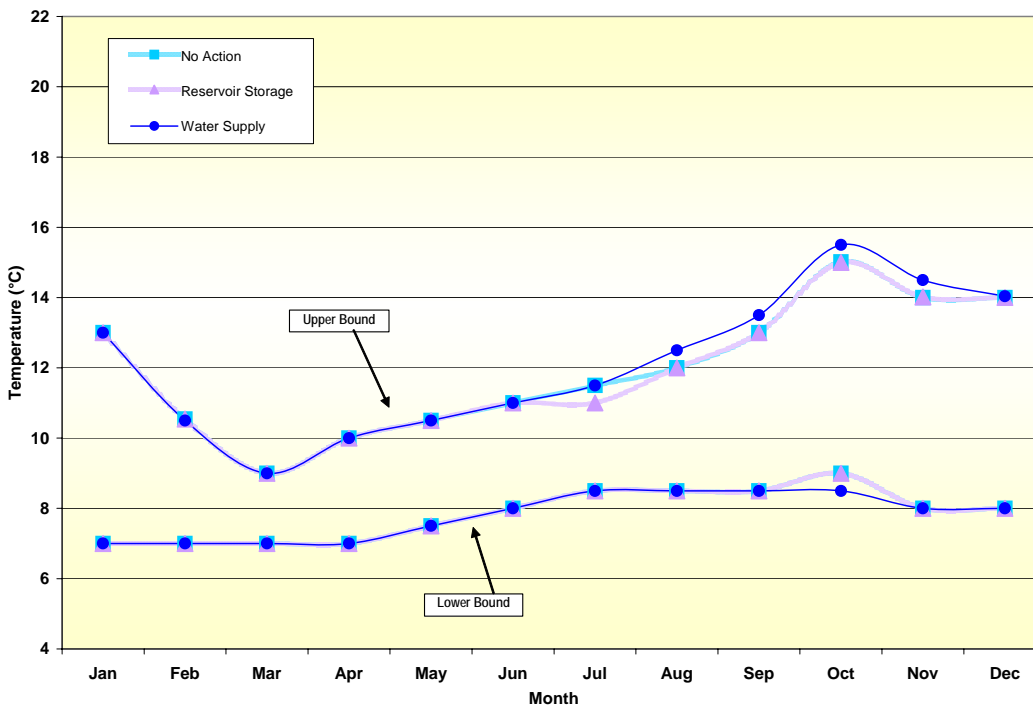
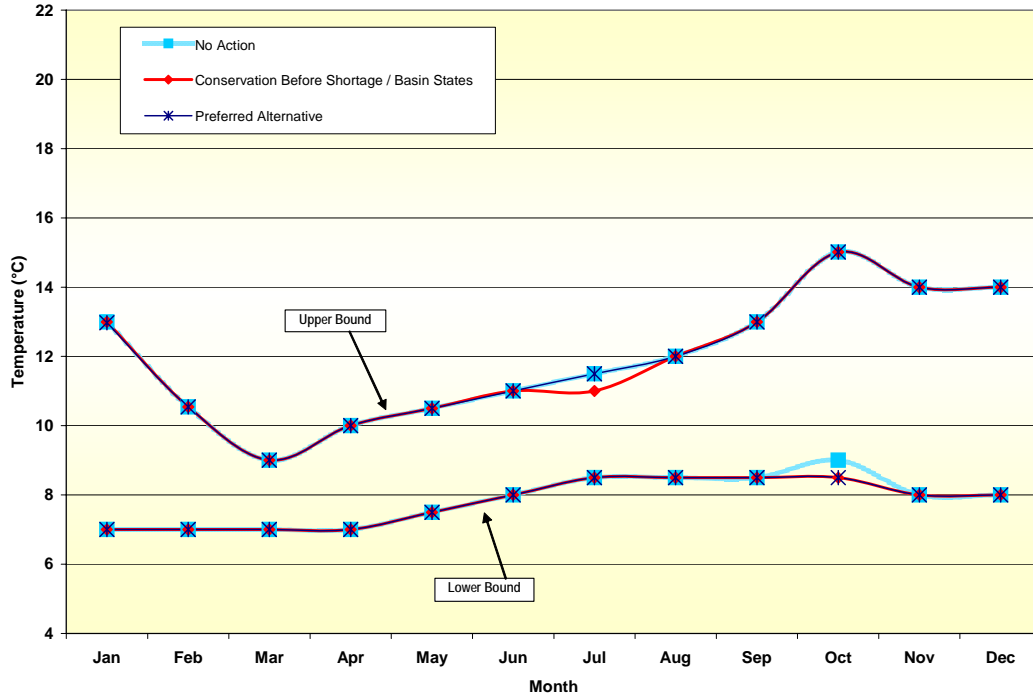


Figure P- BCR-60  
 Glen Canyon Dam Release Temperatures  
 Comparison of Action Alternatives to No Action Alternative  
 10<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

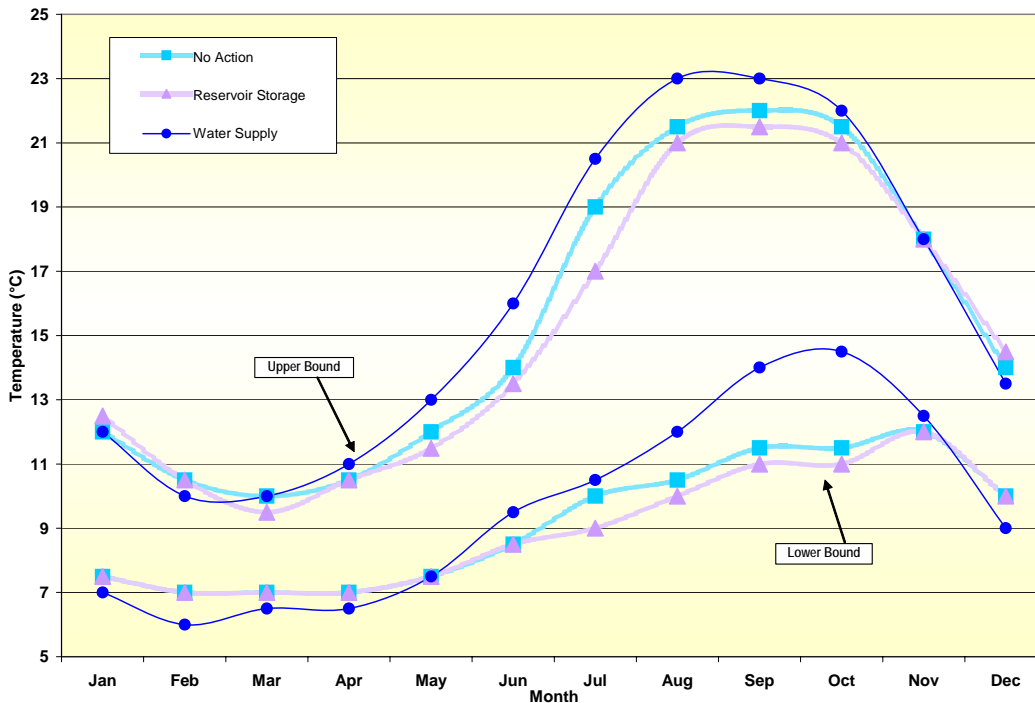
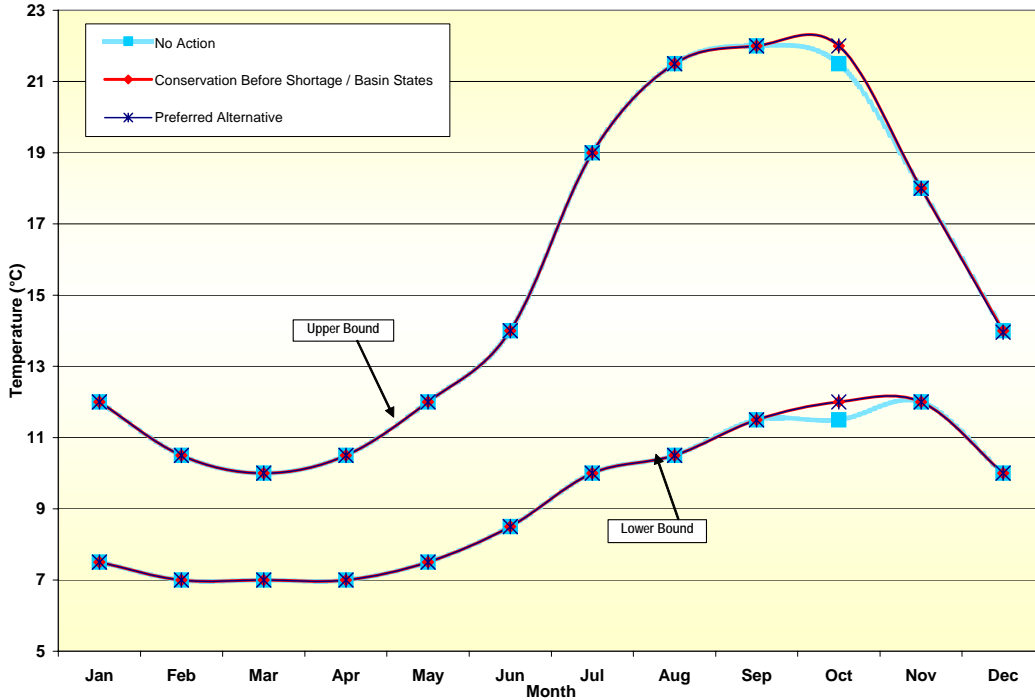


Figure P- BCR-61  
 Colorado River at Lees Ferry  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

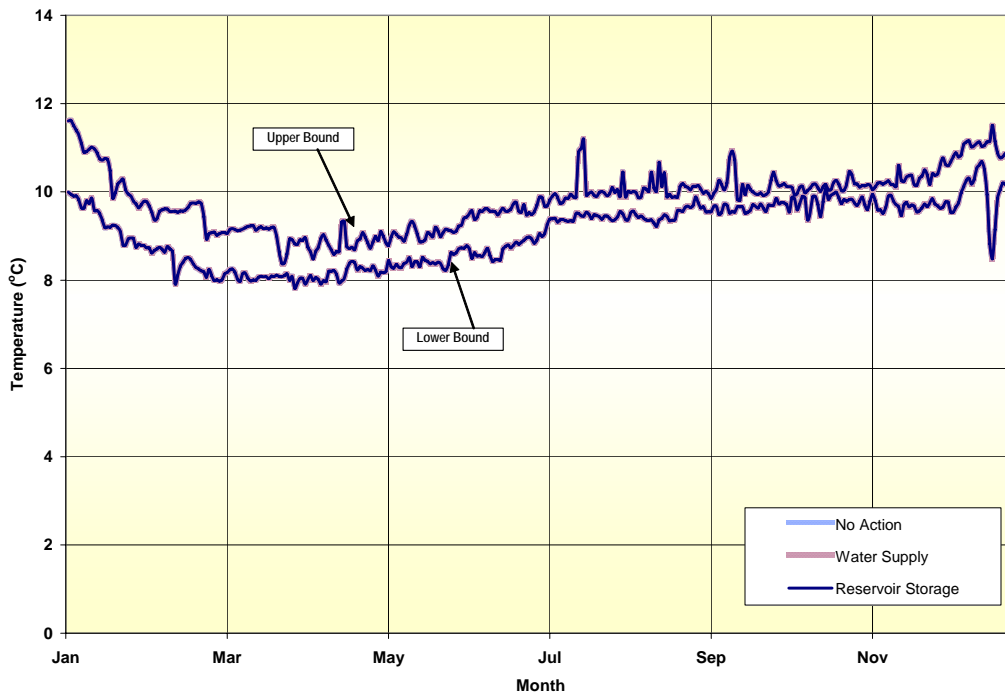
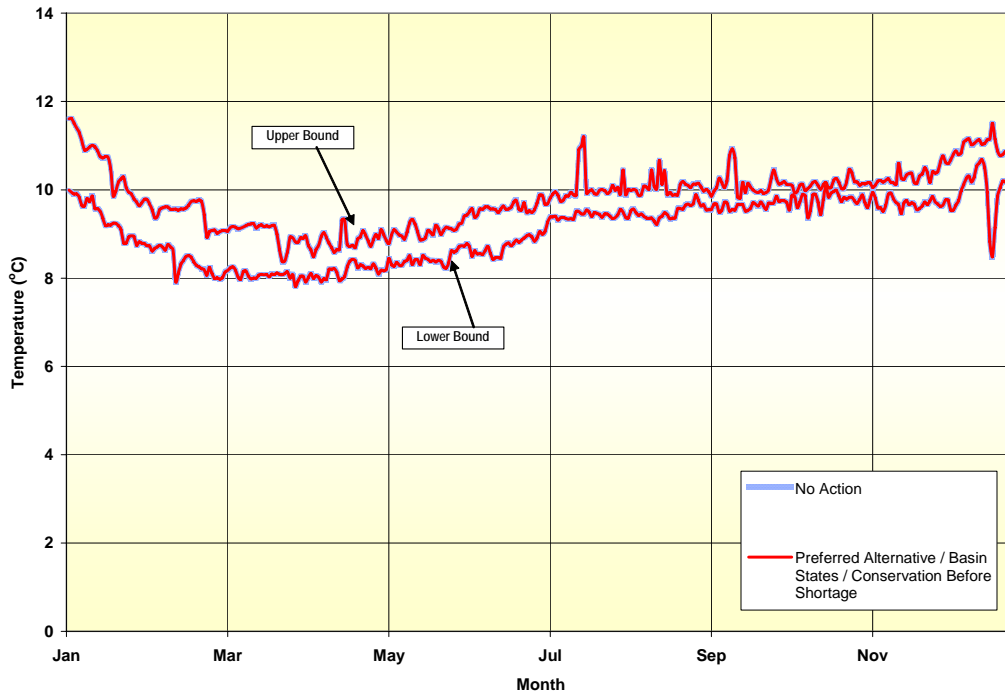


Figure P- BCR-62  
 Colorado River at Lees Ferry  
 Comparison of Action Alternatives to No Action Alternative  
 50<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

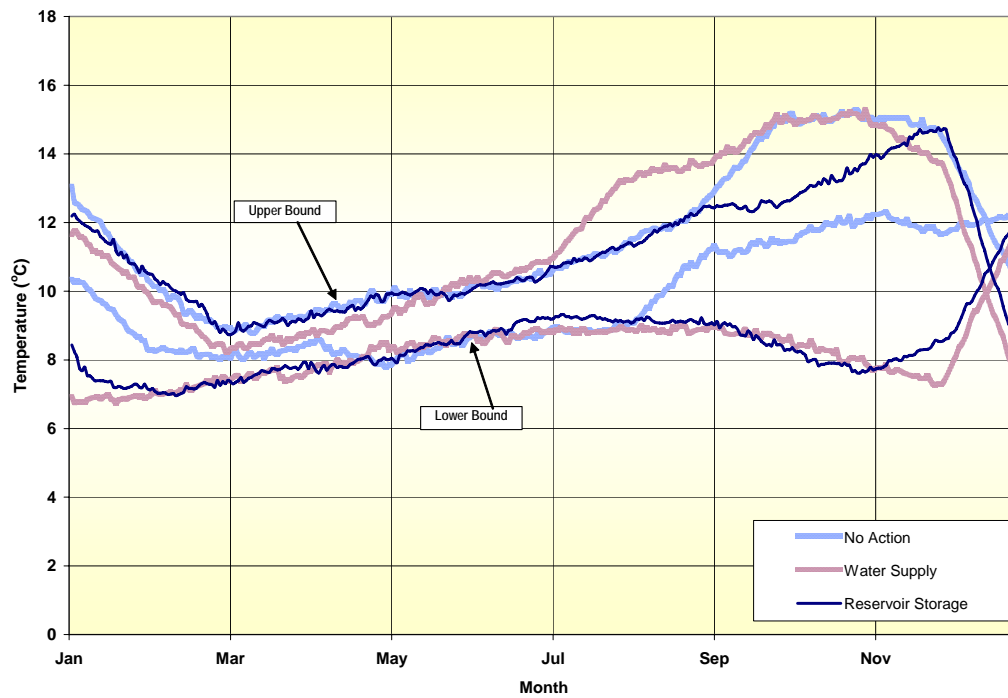
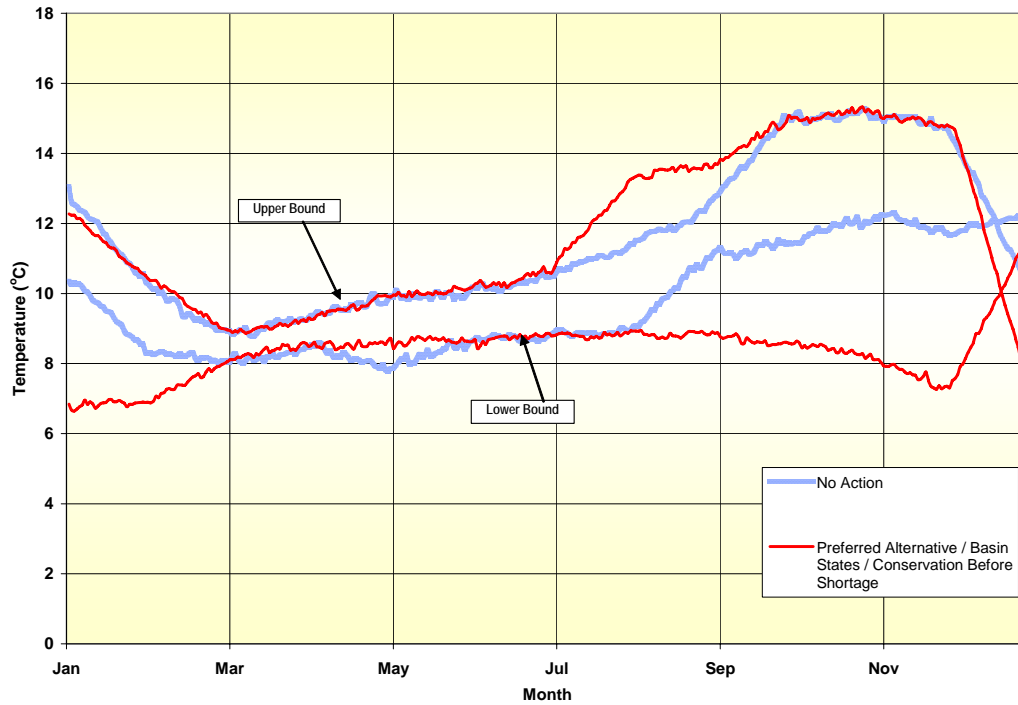




Figure P- BCR-63  
 Colorado River at Lees Ferry  
 Comparison of Action Alternatives to No Action Alternative  
 10<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

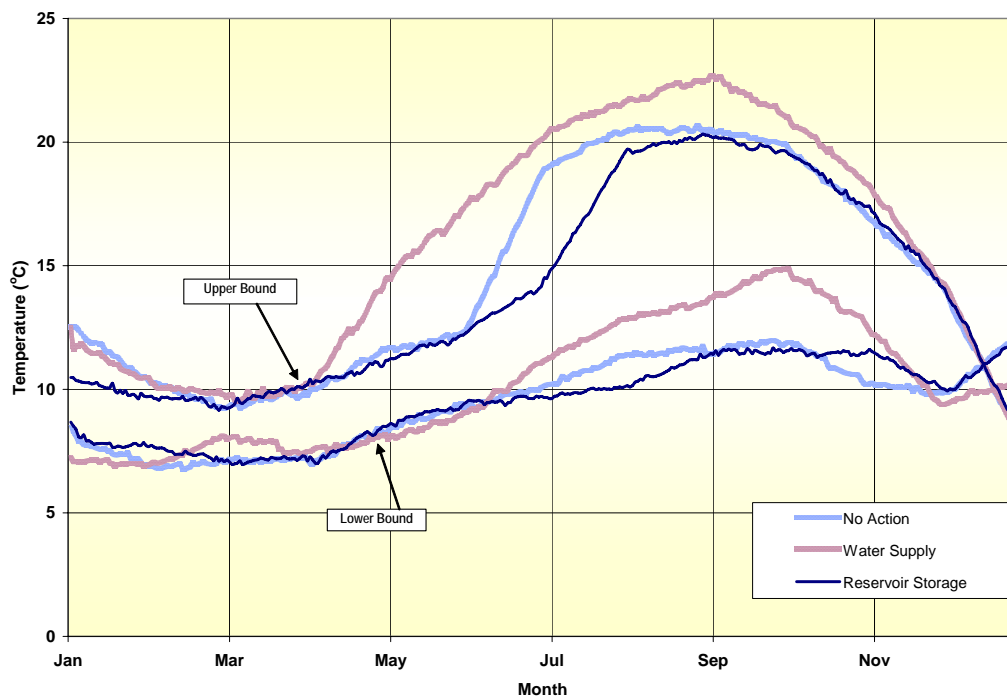
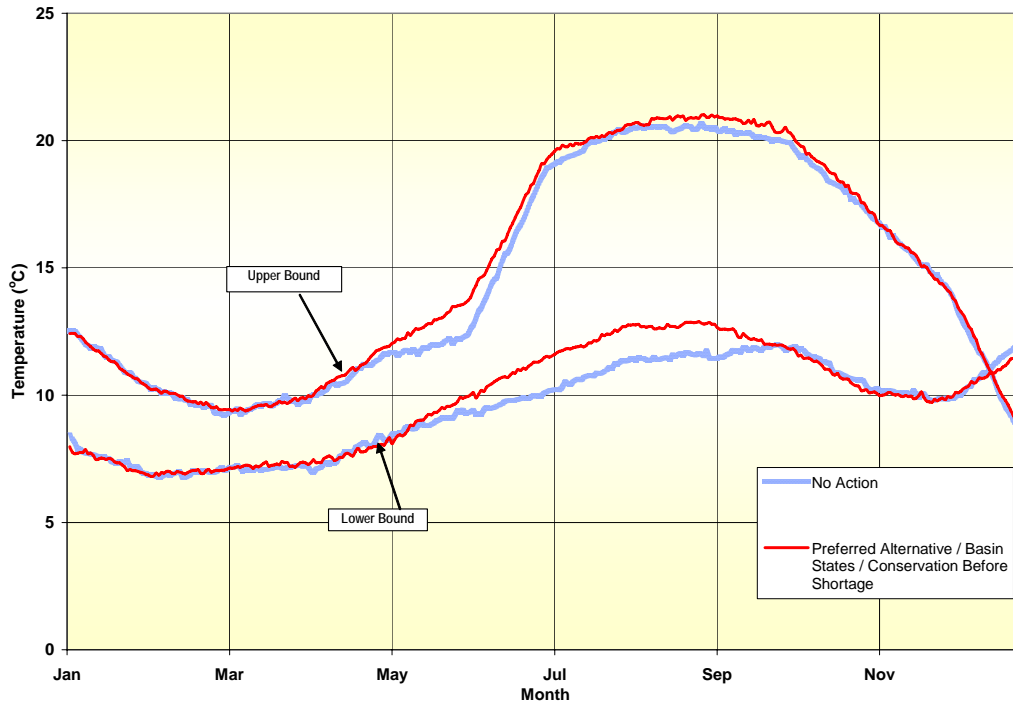


Figure P- BCR-64  
 Colorado River Downstream of Little Colorado River Confluence  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

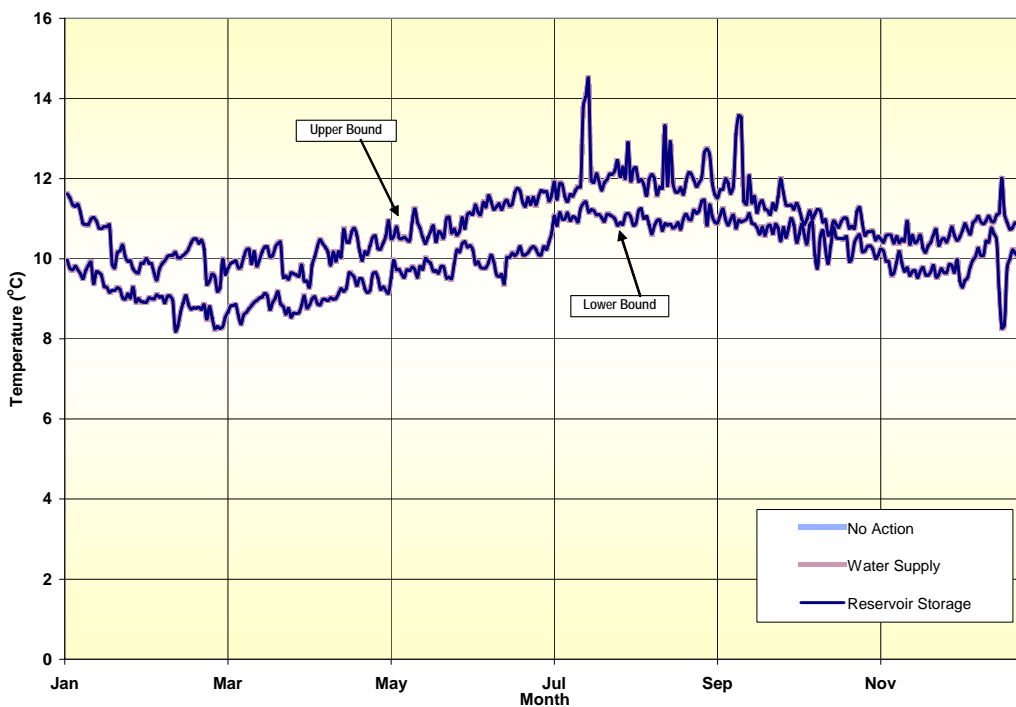
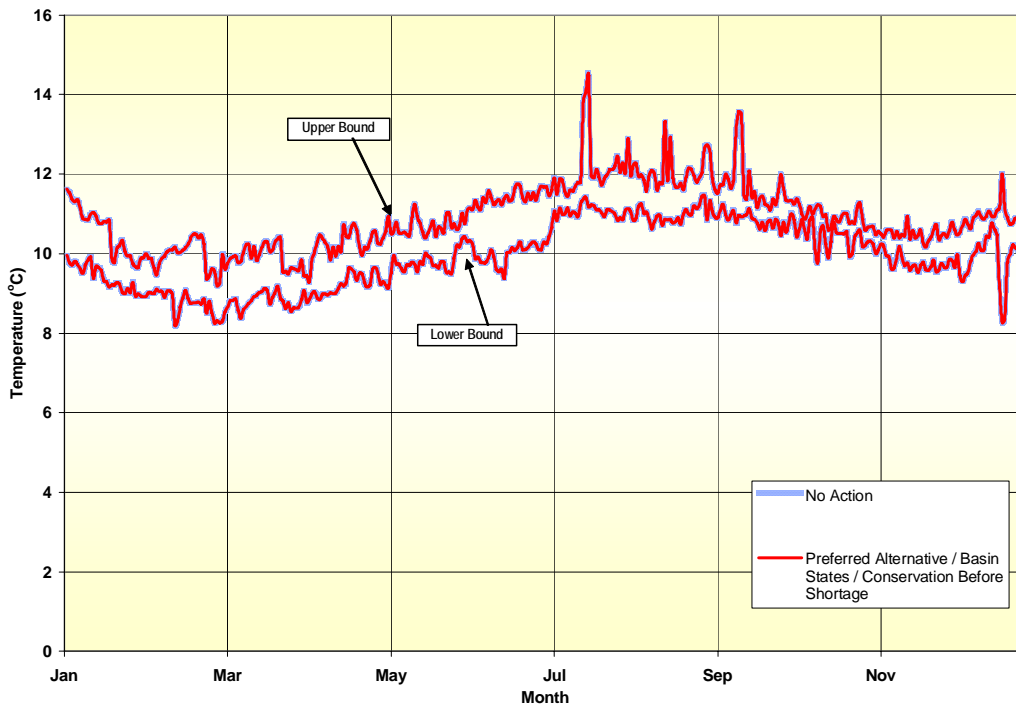


Figure P- BCR-65  
 Colorado River Downstream of Little Colorado River Confluence  
 Comparison of Action Alternatives to No Action Alternative  
 50<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

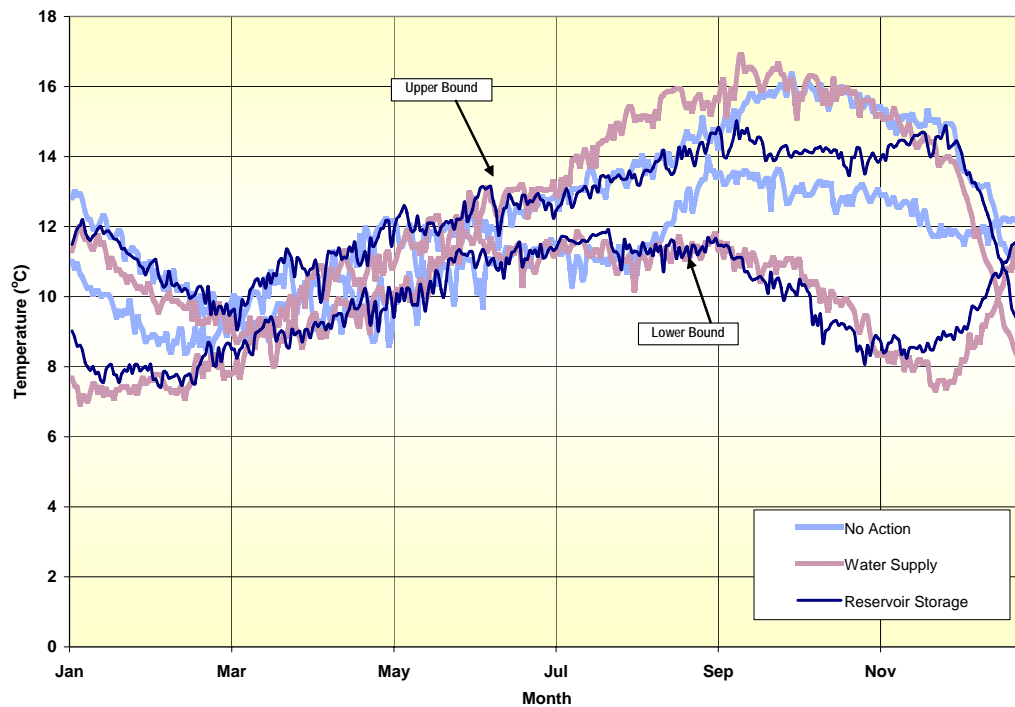
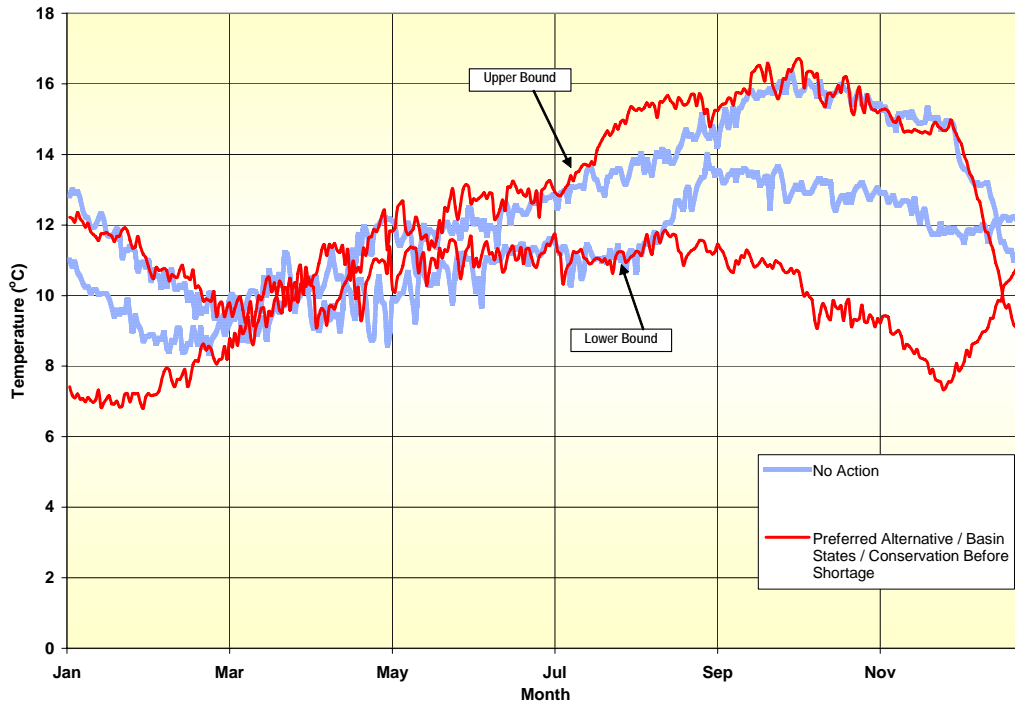


Figure P- BCR-66  
 Colorado River Downstream of Little Colorado River Confluence  
 Comparison of Action Alternatives to No Action Alternative  
 10<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

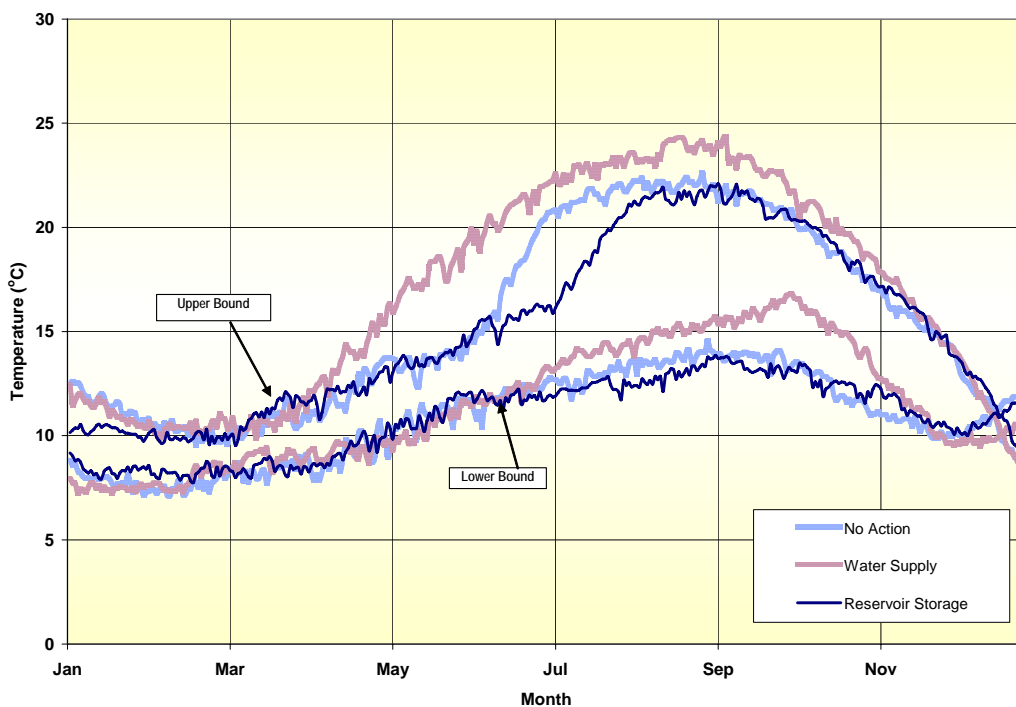
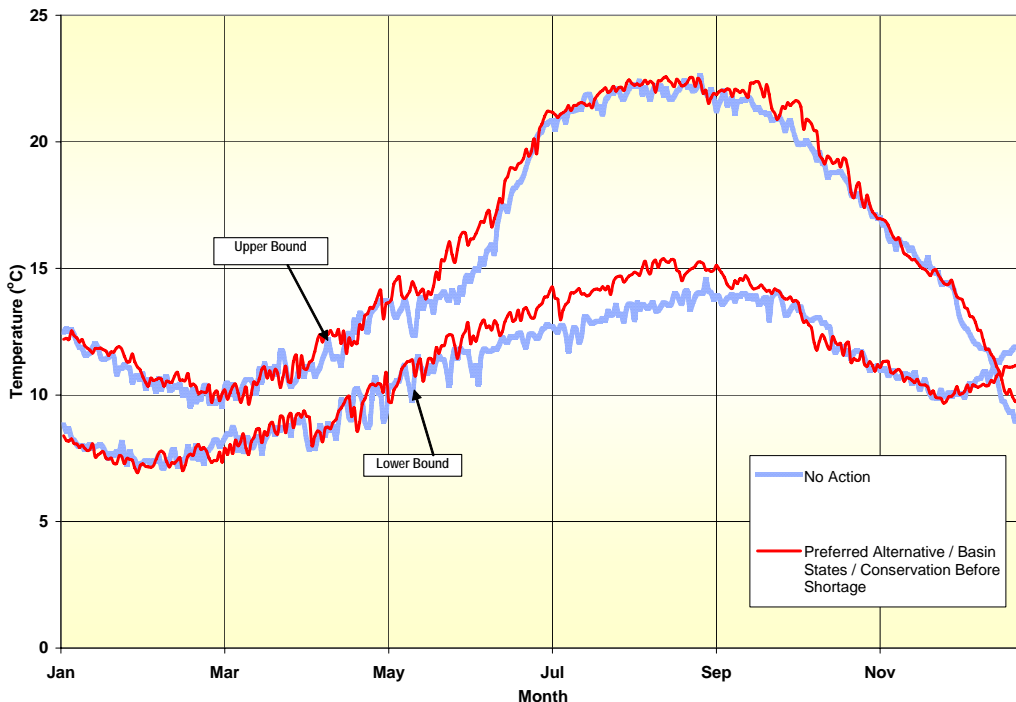


Figure P- BCR-67  
 Colorado River Near Diamond Creek  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

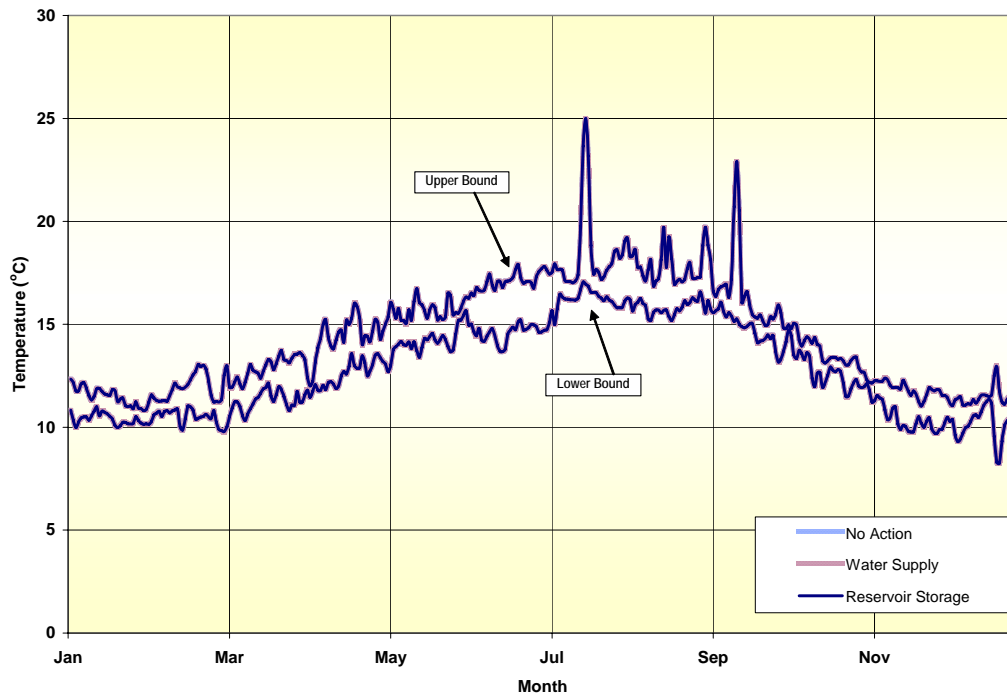
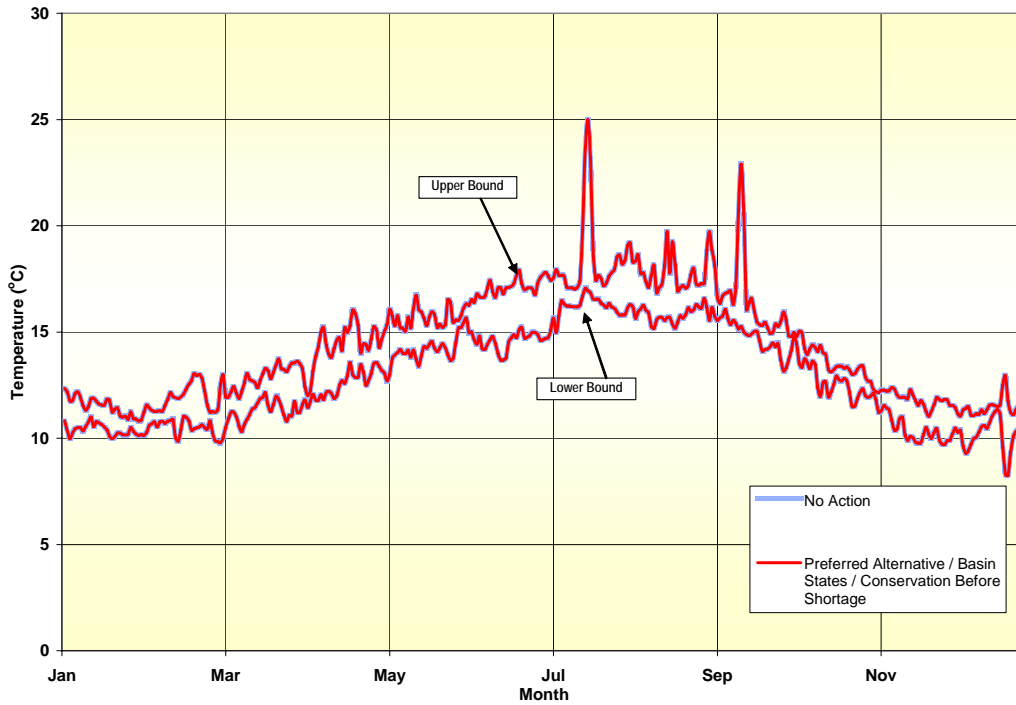


Figure P- BCR-68  
Colorado River Near Diamond Creek  
Comparison of Action Alternatives to No Action Alternative  
50<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

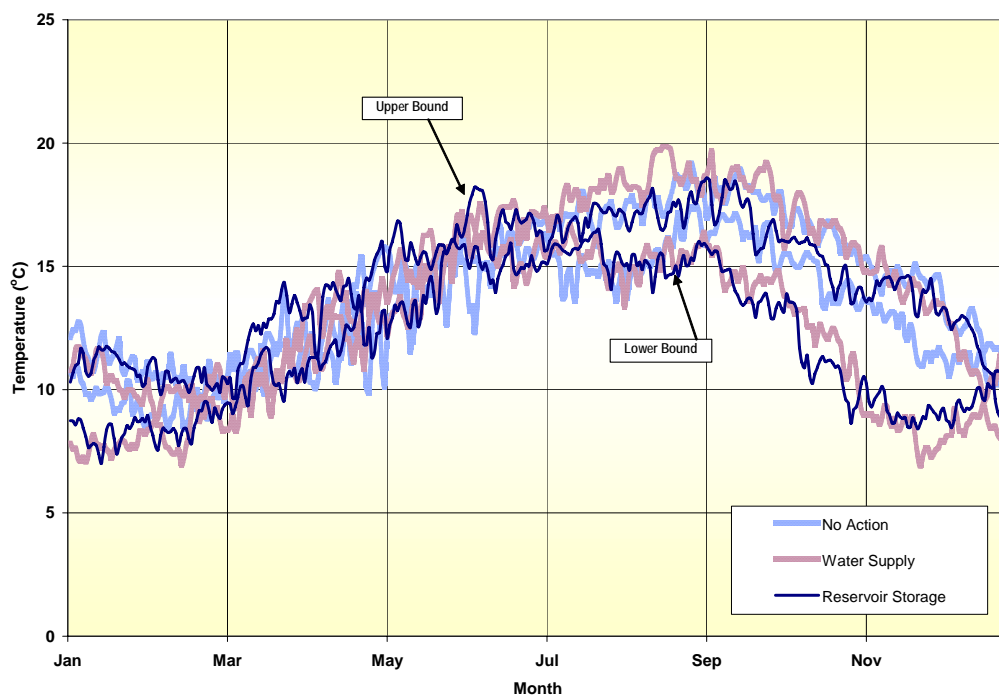
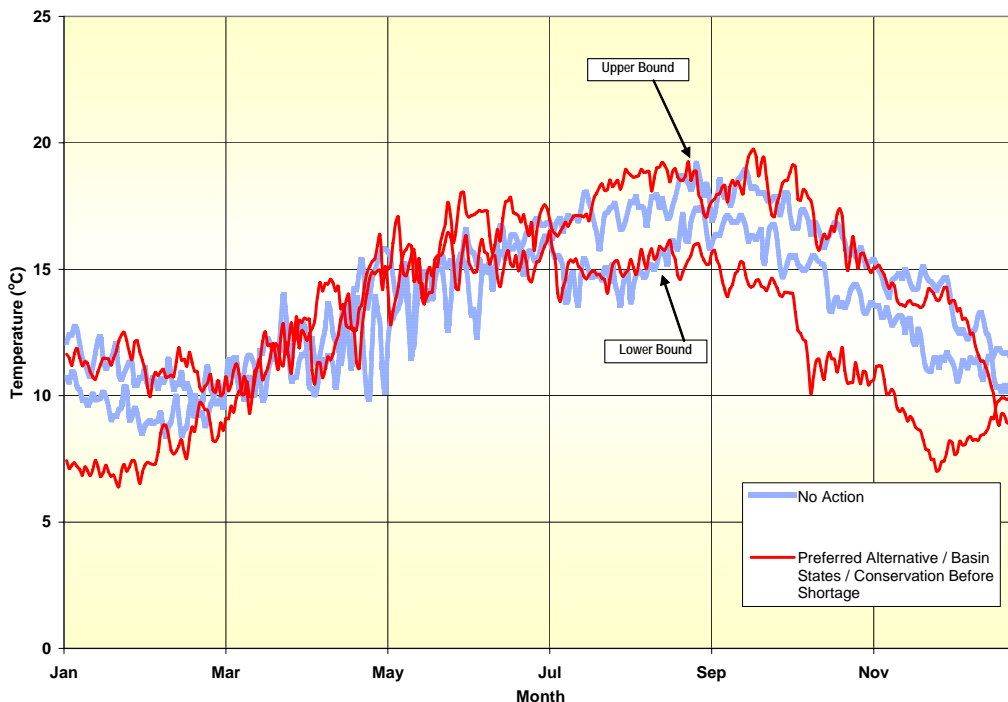


Figure P- BCR-69  
 Colorado River Near Diamond Creek  
 Comparison of Action Alternatives to No Action Alternative  
 10<sup>th</sup> Percentile Temperatures Upper and Lower Bounds

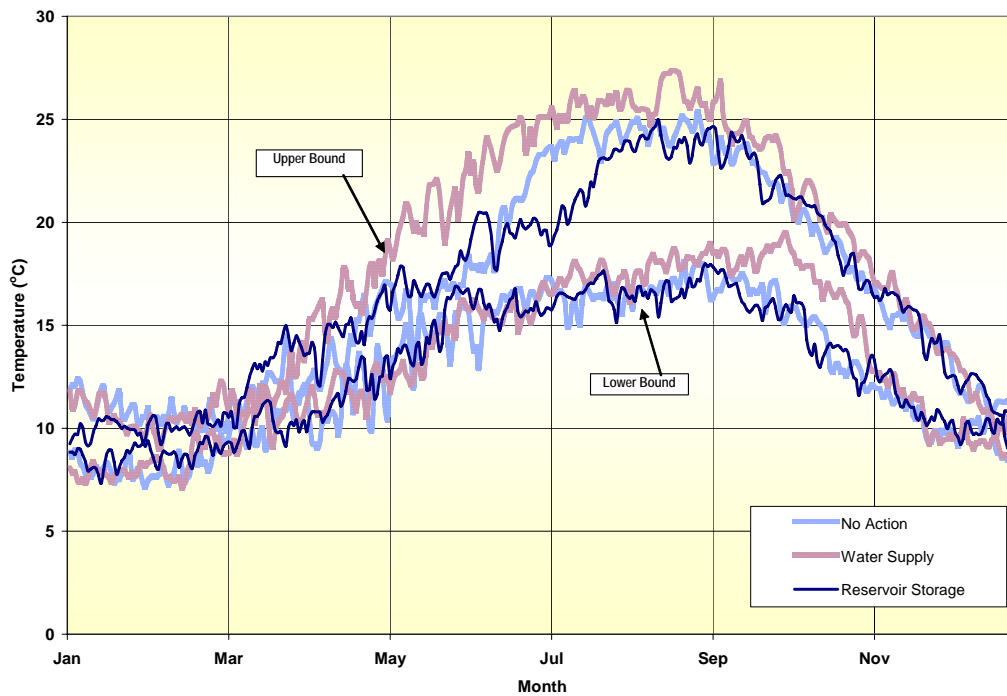
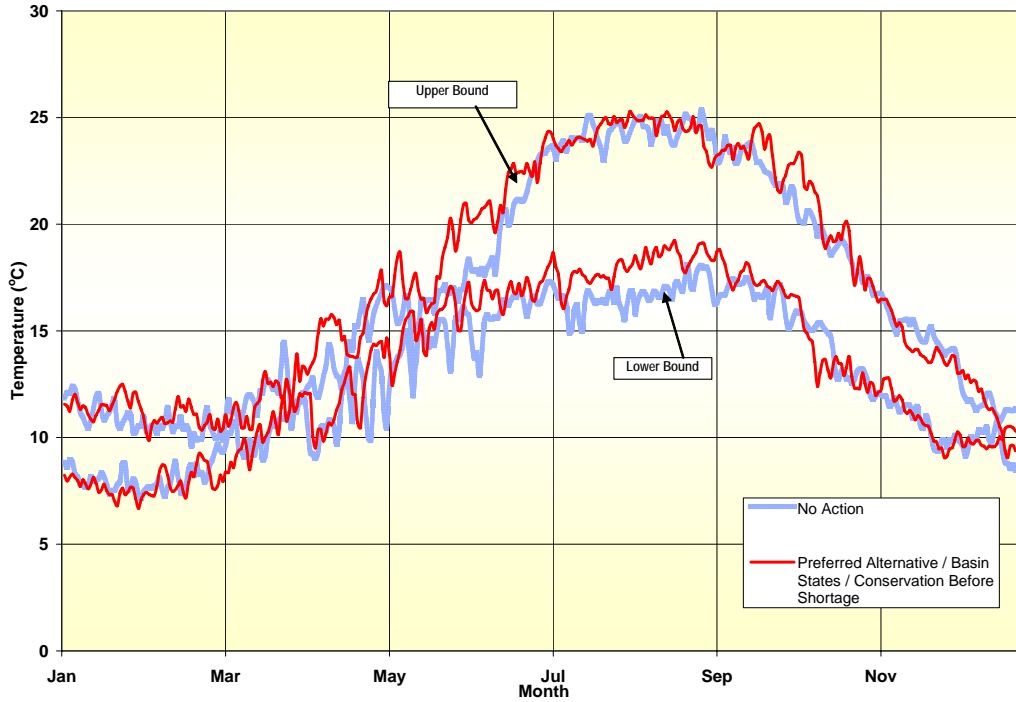


Table P-BCR-1  
Average Monthly Temperature (°C)  
Colorado River at Lees Ferry

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>No Action</b>												
90 <sup>th</sup> Percentile	9.5	9	8.5	8.5	8.7	9	9.5	10	10.3	10.5	10.3	10
50 <sup>th</sup> Percentile	10.5	8.7	8.3	8.3	8.9	9.2	9.5	10.5	11	11.5	11.5	11
10 <sup>th</sup> Percentile	10	8.5	8.2	8.8	10	11.5	15	16	16.5	15.5	14	12
<b>Basin States / Conservation Before Shortage</b>												
90 <sup>th</sup> Percentile	9.9	8.9	8.5	8.5	8.7	9.1	9.7	9.8	9.9	10.0	10.0	10.4
50 <sup>th</sup> Percentile	9.1	8.6	8.7	9.0	9.3	9.5	10.3	11.2	11.5	11.8	11.3	10.4
10 <sup>th</sup> Percentile	9.4	8.4	8.4	9.2	10.9	13.4	16.0	16.8	16.5	15.0	12.9	11.1
<b>Water Supply</b>												
90 <sup>th</sup> Percentile	9.9	8.9	8.5	8.5	8.7	9.1	9.7	9.8	9.9	10.0	10.0	10.4
50 <sup>th</sup> Percentile	8.9	8.1	8.0	8.5	9.1	9.6	10.4	11.2	11.6	11.7	11.0	10.0
10 <sup>th</sup> Percentile	9.1	8.7	8.8	9.8	12.1	14.3	16.4	17.6	18.1	16.9	13.9	10.6
<b>Reservoir Storage</b>												
90 <sup>th</sup> Percentile	9.9	8.9	8.5	8.5	8.7	9.1	9.7	9.8	9.9	10.0	10.0	10.4
50 <sup>th</sup> Percentile	9.4	8.4	8.3	8.7	9.1	9.6	10.1	10.5	10.6	10.5	11.2	11.0
10 <sup>th</sup> Percentile	8.9	8.5	8.4	9.1	10.3	11.4	13.3	15.3	15.7	15.1	13.5	11.2
<b>Preferred Alternative</b>												
90 <sup>th</sup> Percentile	9.5	9	8.5	8.5	8.7	9	9.5	10	10.3	10.5	10.3	10
50 <sup>th</sup> Percentile	10.5	8.7	8.3	8.3	8.9	9.2	9.5	10.5	11	11.5	11.5	11
10 <sup>th</sup> Percentile	10	8.5	8.2	8.8	10	11.5	15	16	16.5	15.5	14	12



Table P-BCR-2  
Average Monthly Temperature (°C)  
Colorado River Below Little Colorado River

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>No Action</b>												
90 <sup>th</sup> Percentile	10.0	9.4	9.4	9.7	10.2	10.7	11.5	11.5	11.4	10.7	10.2	10.4
50 <sup>th</sup> Percentile	10.8	9.4	9.8	10.3	11.0	11.7	12.1	13.0	14.4	14.4	13.8	12.4
10 <sup>th</sup> Percentile	9.7	8.9	9.5	10.5	12.2	14.4	18.0	17.8	17.6	16.0	13.3	11.2
<b>Basin States / Conservation Before Shortage</b>												
90 <sup>th</sup> Percentile	10.0	9.4	9.4	9.7	10.2	10.7	11.5	11.5	11.4	10.7	10.2	10.4
50 <sup>th</sup> Percentile	9.4	9.1	9.7	10.7	11.5	12.0	12.4	13.4	13.4	12.9	11.8	10.5
10 <sup>th</sup> Percentile	9.7	9.0	9.4	10.8	12.8	15.4	17.8	18.7	18.2	16.1	13.3	11.2
<b>Water Supply</b>												
90 <sup>th</sup> Percentile	10.0	9.4	9.4	9.7	10.2	10.7	11.5	11.5	11.4	10.7	10.2	10.4
50 <sup>th</sup> Percentile	9.2	8.7	8.9	10.1	11.1	12.0	12.6	13.3	13.6	13.0	11.5	10.2
10 <sup>th</sup> Percentile	9.3	9.2	9.8	11.4	13.9	16.3	18.3	19.3	19.5	17.9	14.2	10.7
<b>Reservoir Storage</b>												
90 <sup>th</sup> Percentile	9.9	9.4	9.4	9.7	10.2	10.7	11.5	11.5	11.4	10.7	10.2	10.4
50 <sup>th</sup> Percentile	9.8	9.0	9.6	10.3	11.2	11.9	12.3	12.6	12.6	11.7	11.5	11.2
10 <sup>th</sup> Percentile	9.3	9.1	9.7	10.7	12.3	13.7	15.2	17.1	17.3	16.0	13.8	11.4
<b>Preferred Alternative</b>												
90 <sup>th</sup> Percentile	10.0	9.4	9.4	9.7	10.2	10.7	11.5	11.5	11.4	10.7	10.2	10.4
50 <sup>th</sup> Percentile	9.4	9.1	9.7	10.7	11.5	12.0	12.4	13.4	13.4	12.9	11.8	10.5
10 <sup>th</sup> Percentile	9.7	9.0	9.4	10.8	12.8	15.4	17.8	18.7	18.2	16.1	13.3	11.2

Table P-BCR-3  
Average Monthly Temperature (°C)  
Colorado River Near Diamond Creek

Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>No Action</b>												
90 <sup>th</sup> Percentile	10.9	11.2	12.0	13.4	14.8	15.8	17.2	16.8	16.0	13.4	11.3	10.8
50 <sup>th</sup> Percentile	10.6	9.8	11.2	12.4	14.2	15.5	16.5	16.6	17.3	15.6	13.7	11.8
10 <sup>th</sup> Percentile	9.6	9.3	11.0	12.6	15.2	17.7	20.2	20.7	20.0	16.9	13.3	10.8
<b>Basin States / Conservation Before Shortage</b>												
90 <sup>th</sup> Percentile	10.9	11.2	12.0	13.4	14.8	15.8	17.2	16.8	16.0	13.4	11.3	10.8
50 <sup>th</sup> Percentile	9.3	9.6	11.0	13.2	15.2	16.1	16.2	17.1	16.5	14.5	11.9	10.1
10 <sup>th</sup> Percentile	9.6	9.4	10.9	13.4	16.3	19.1	20.9	21.6	20.5	17.2	13.2	10.7
<b>Water Supply</b>												
90 <sup>th</sup> Percentile	10.9	11.2	12.0	13.4	14.8	15.8	17.2	16.8	16.0	13.4	11.3	10.8
50 <sup>th</sup> Percentile	9.1	9.2	10.2	12.7	14.5	16.2	16.6	17.0	16.7	14.7	11.7	9.9
10 <sup>th</sup> Percentile	9.3	9.5	11.0	13.9	16.8	19.6	21.4	22.0	21.5	18.9	14.1	10.4
<b>Reservoir Storage</b>												
90 <sup>th</sup> Percentile	10.9	11.2	12.0	13.4	14.8	15.8	17.2	16.8	16.0	13.4	11.3	10.8
50 <sup>th</sup> Percentile	9.7	9.5	11.3	12.8	14.7	16.0	16.1	16.1	15.9	13.5	11.7	10.7
10 <sup>th</sup> Percentile	9.3	9.5	11.4	13.0	15.7	17.7	18.9	20.2	19.9	17.1	13.7	10.8
<b>Preferred Alternative</b>												
90 <sup>th</sup> Percentile	10.9	11.2	12.0	13.4	14.8	15.8	17.2	16.8	16.0	13.4	11.3	10.8
50 <sup>th</sup> Percentile	9.3	9.6	11.0	13.2	15.2	16.1	16.8	17.1	16.5	14.5	11.9	10.1
10 <sup>th</sup> Percentile	9.6	9.4	10.9	13.4	16.3	19.1	20.9	21.6	20.5	17.2	13.2	10.7

## Electrical Power Resources Information

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This section contains additional information used in the electrical power resources impact analyses (Section 4.11 of this Final EIS). This information consists of three groups of graphs. The initial group of graphs provide a comparison of the energy production at Glen Canyon, Hoover, Davis, and Parker Powerplants. The second group of graphs provide a comparison of the Lake Powell and Lake Mead elevations under the modeled action alternatives to those under the modeled No Action Alternative. These graphs compare Lake Powell end-of-July and Lake Mead end-of-December elevations. The last group of graphs provide a comparison of the Headgate Rock Dam annual releases and energy production values under the modeled action alternatives to those under the modeled No Action Alternative.



Figure P-EP-1  
 Glen Canyon Powerplant Annual Energy Production  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

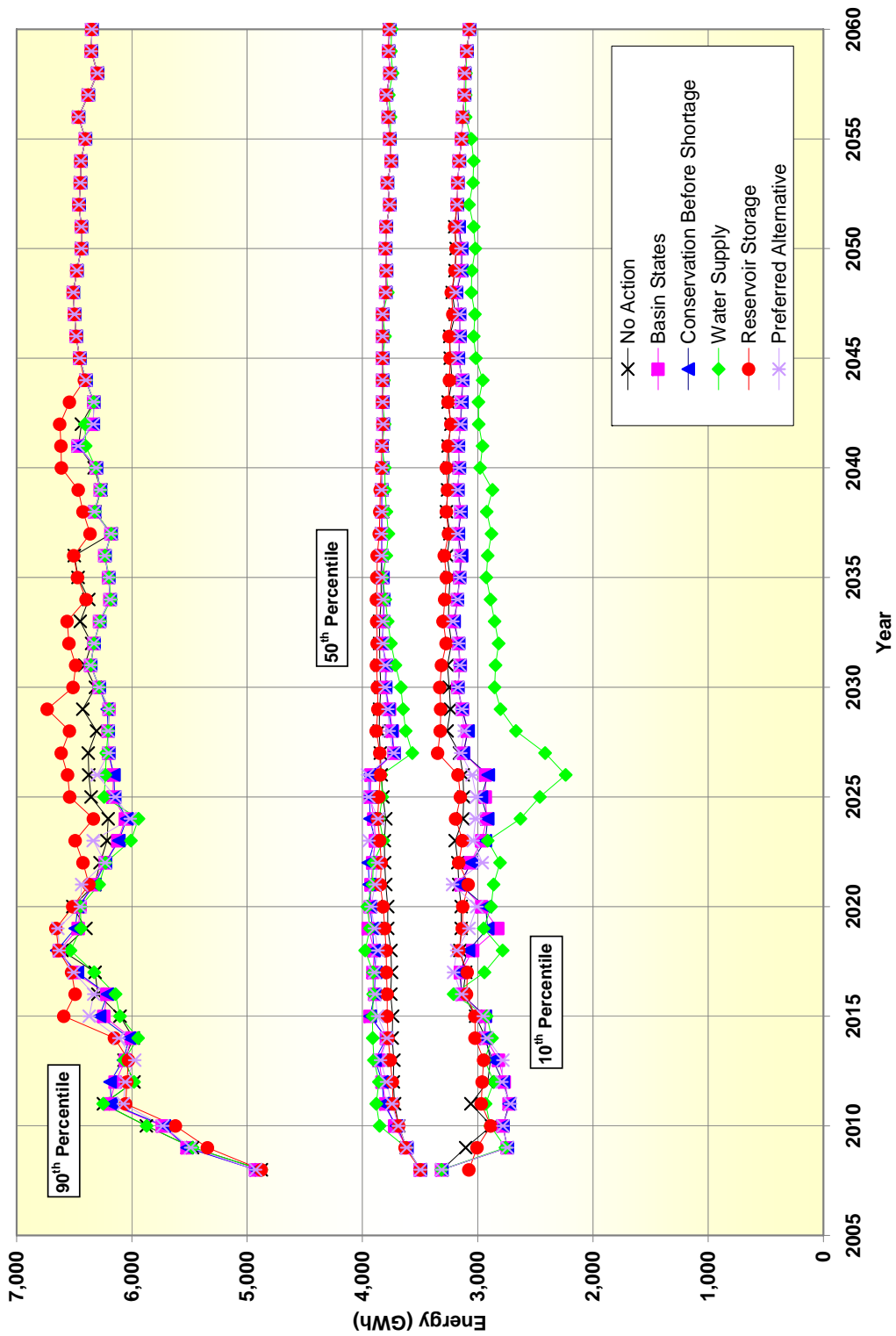


Figure P- EP-2  
 Hoover Powerplant Annual Energy Production  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

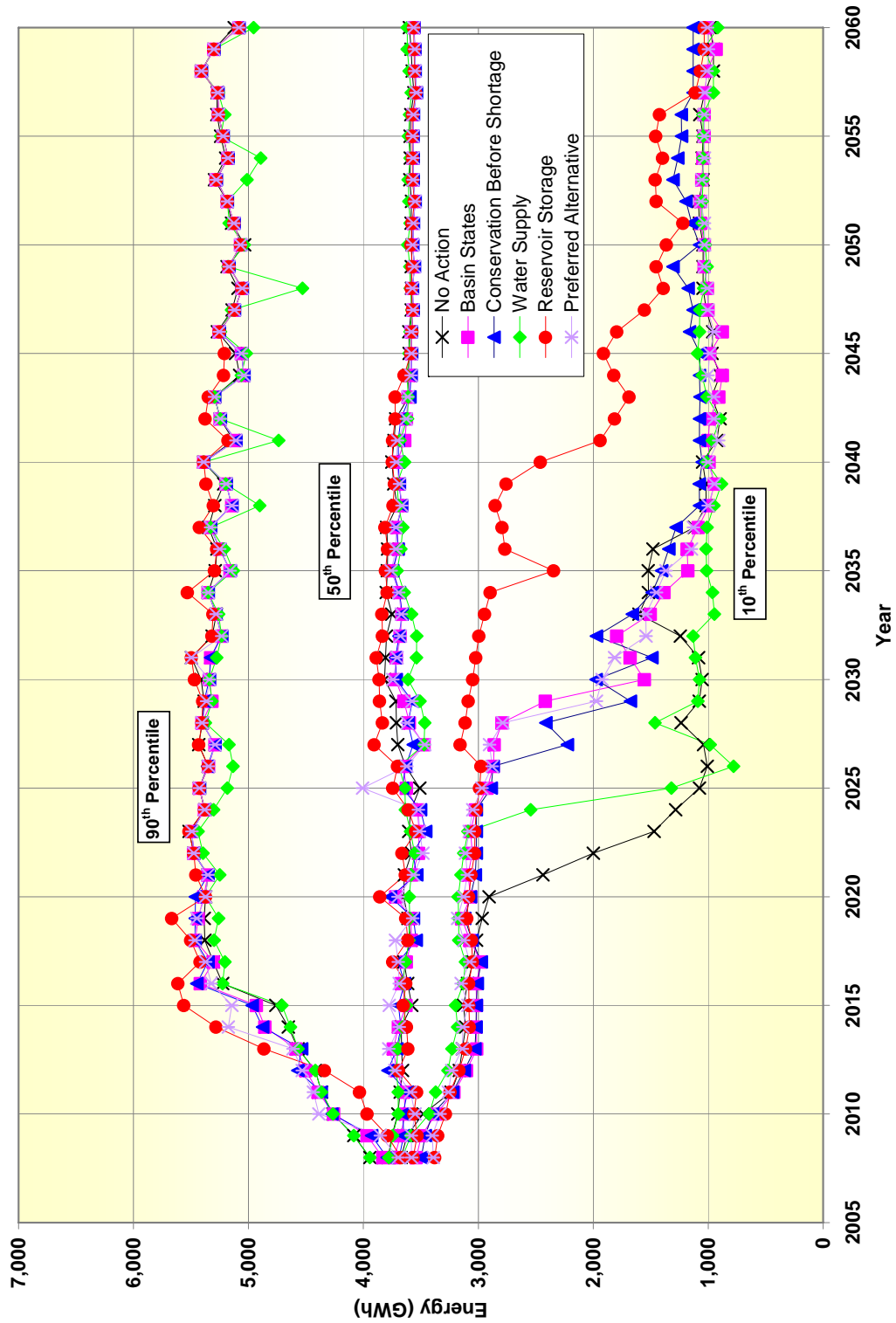


Figure P- EP-3  
 Davis Powerplant Annual Energy Production  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

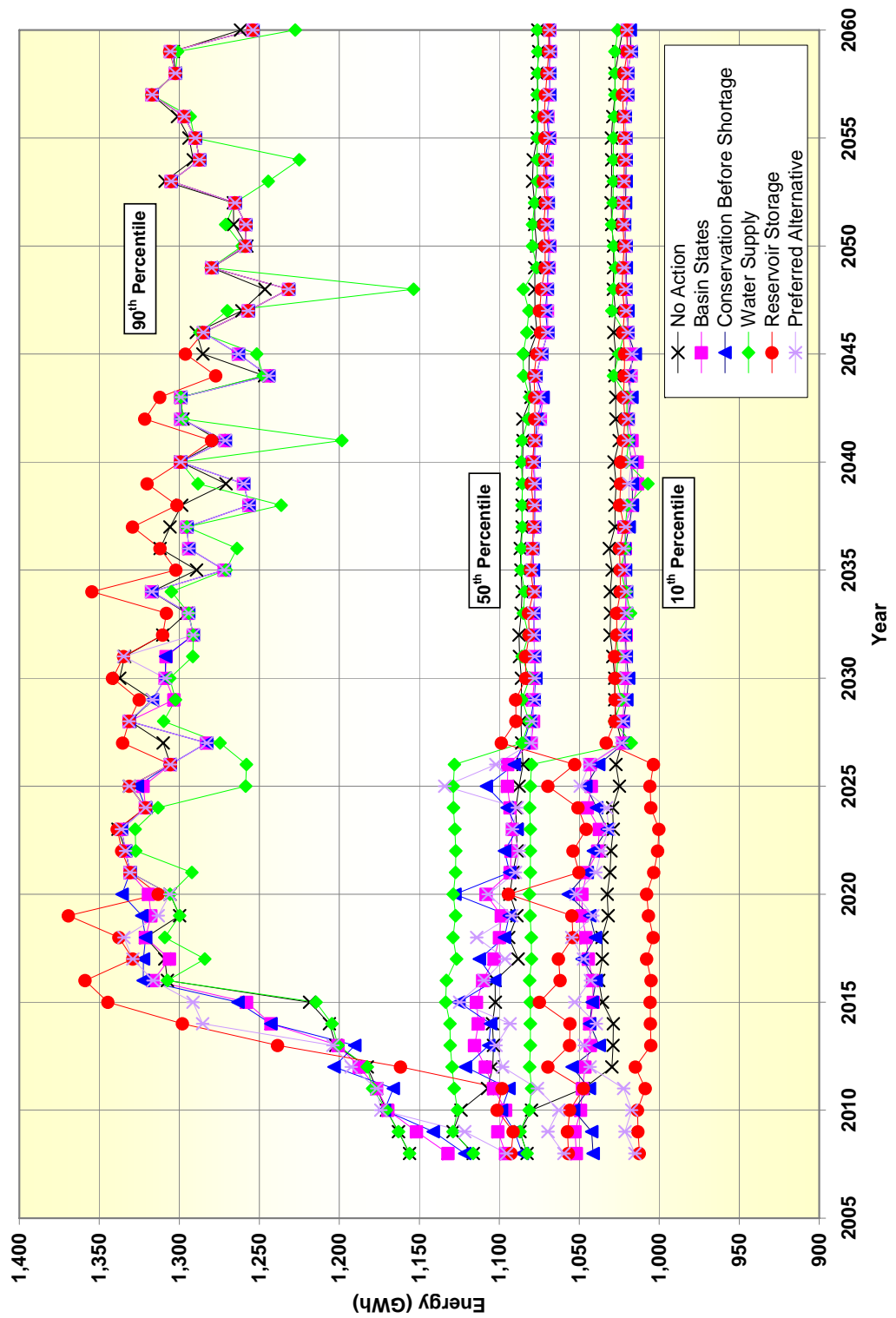


Figure P- EP-4  
 Parker Powerplant Annual Energy Production  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

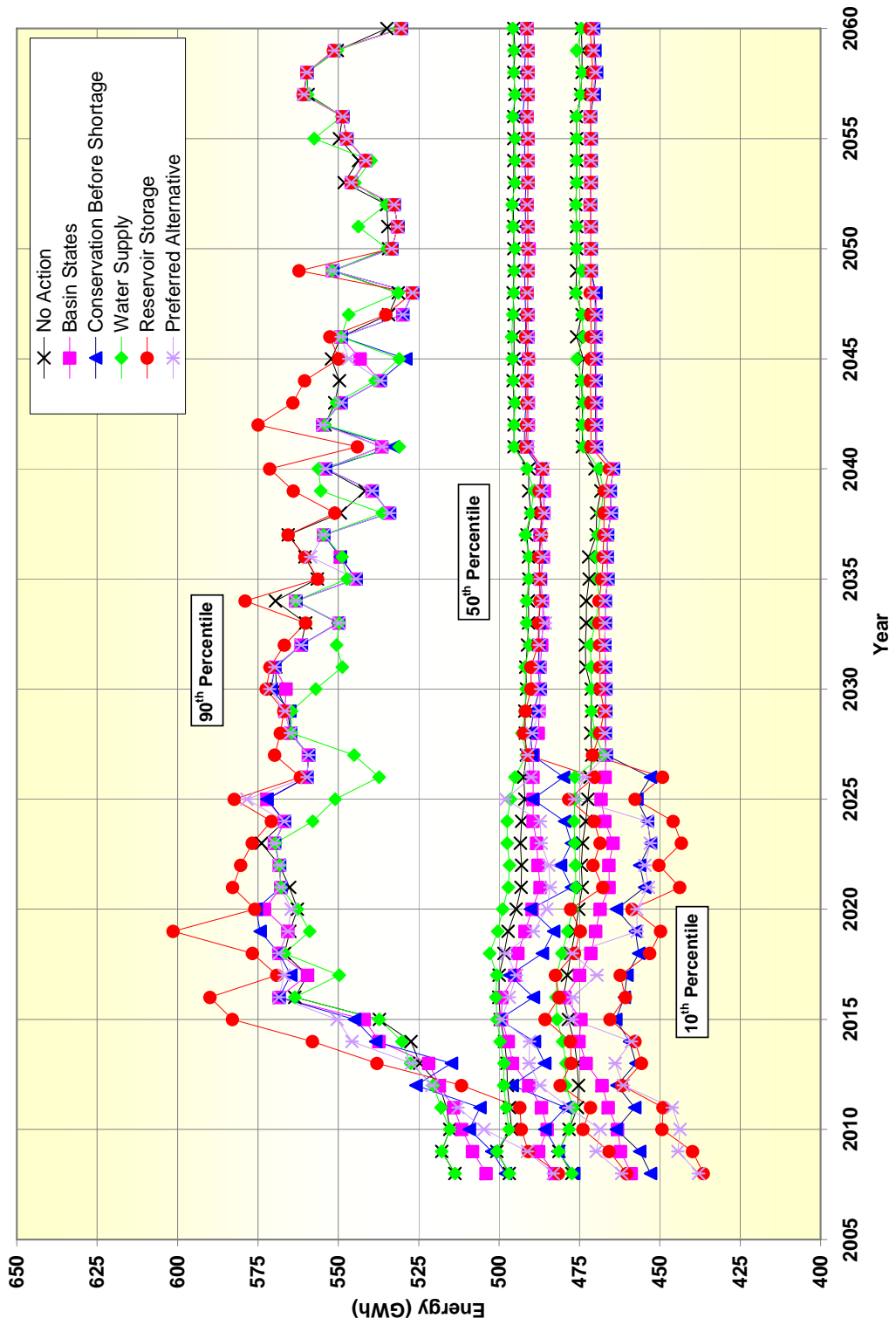




Figure P- EP-5  
 Lake Powell End-of-July Elevations  
 Comparison of Action Alternatives to No Action Alternative  
 50<sup>th</sup> and 10<sup>th</sup> Percentile Values

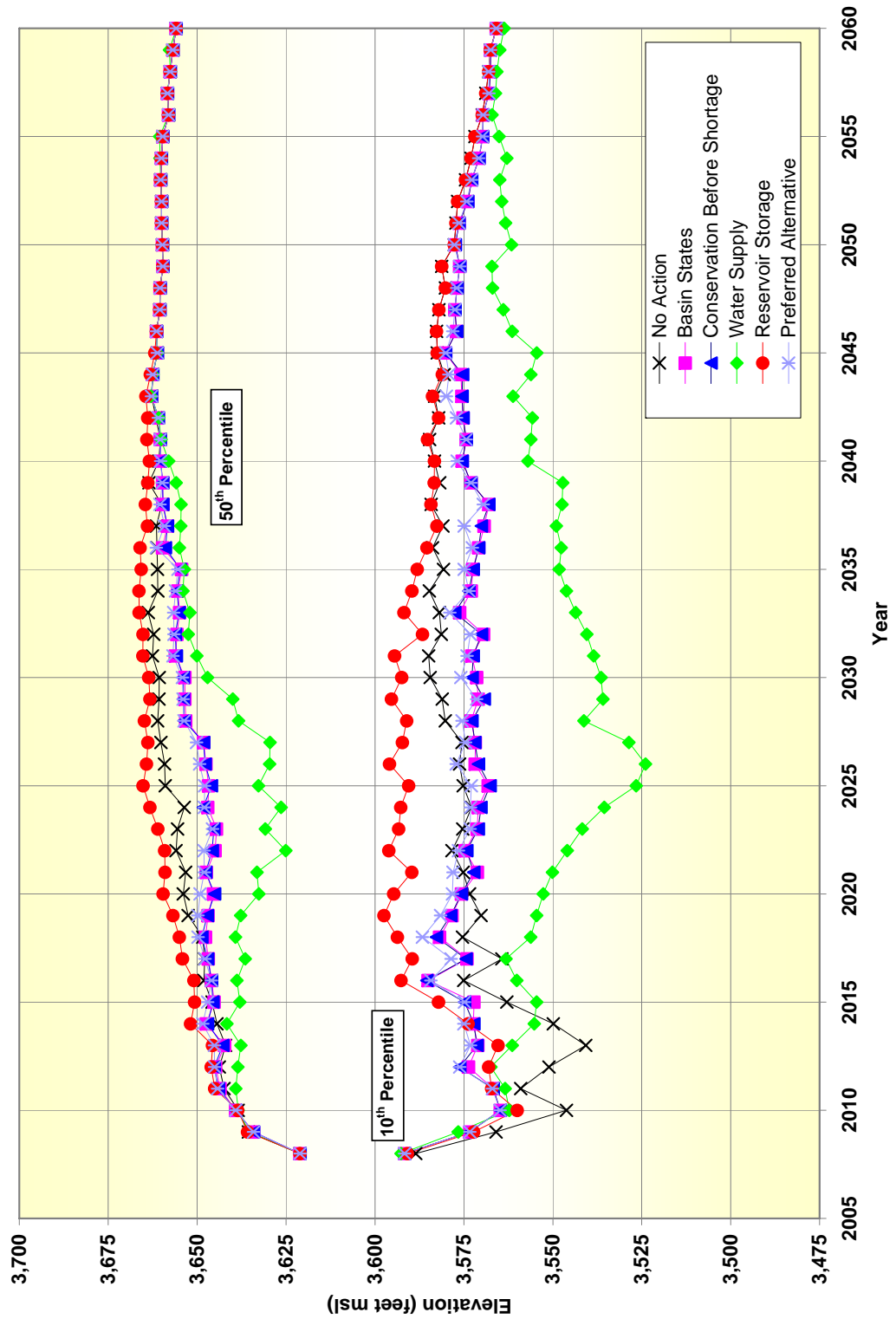


Figure P- EP-6  
Lake Mead End-of-December Elevations  
Comparison of Action Alternatives to No Action Alternative  
50<sup>th</sup> and 10<sup>th</sup> Percentile Values

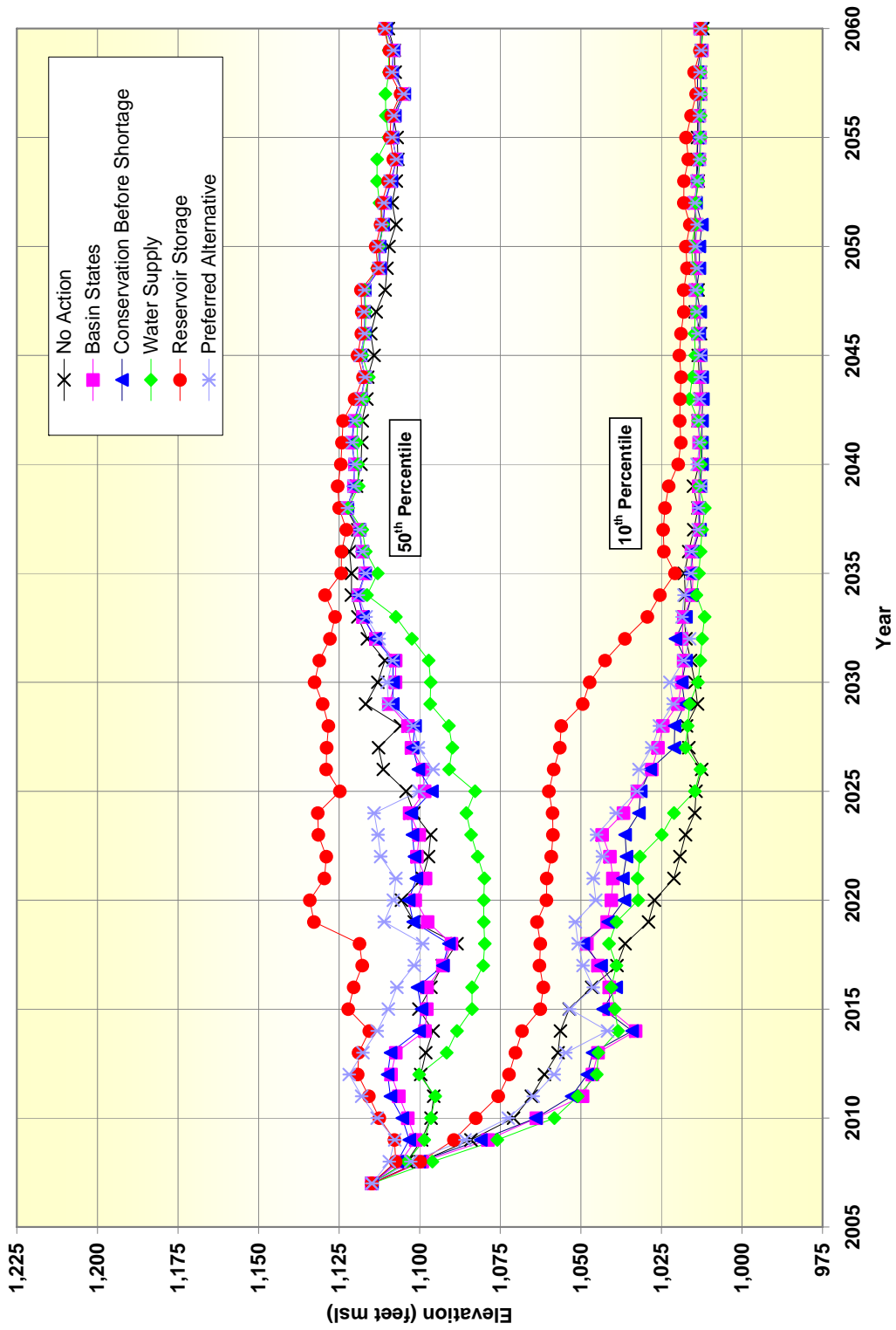


Figure P- EP-7  
 Headgate Rock Dam Annual Releases  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

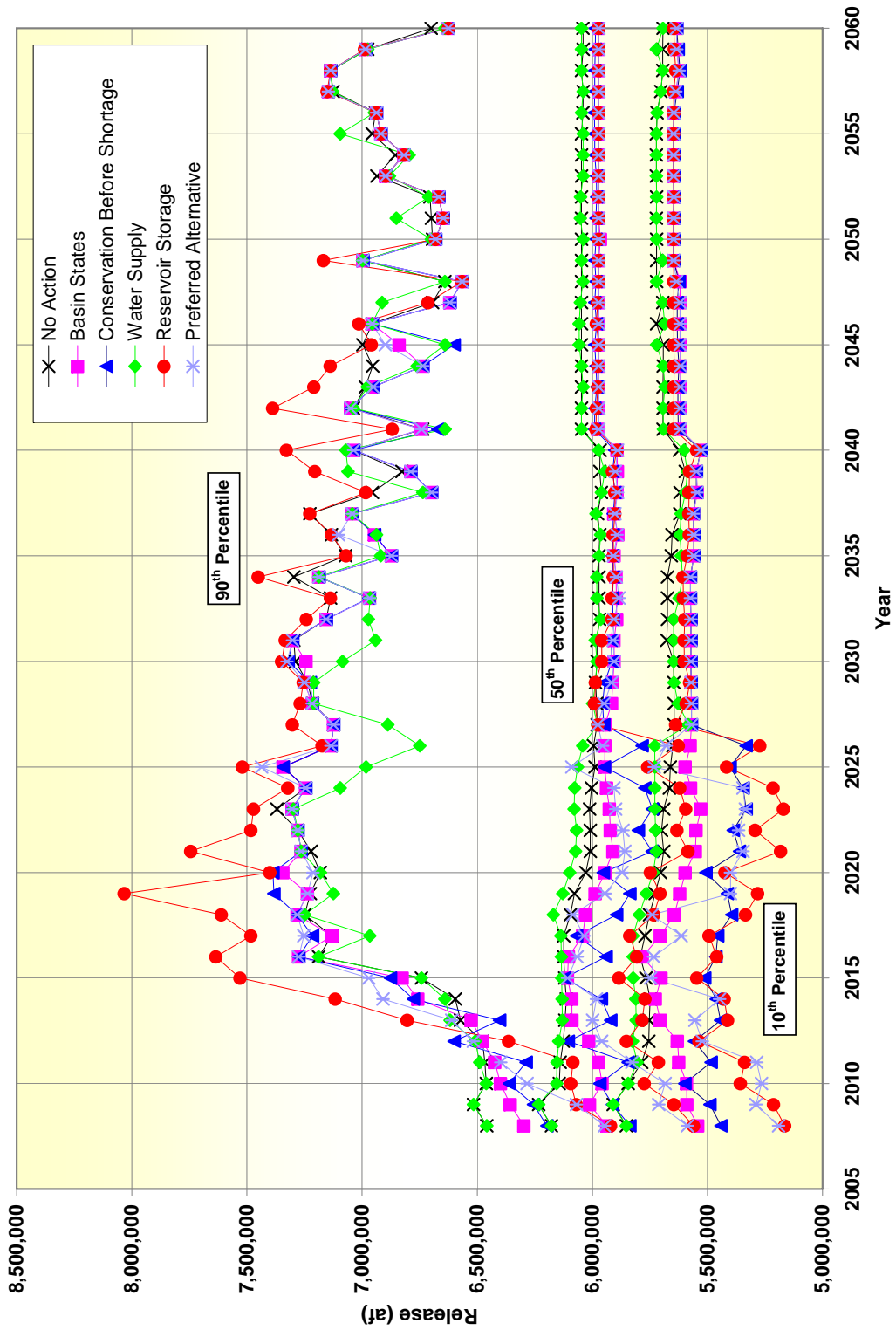


Figure P- EP-8  
 Headgate Rock Dam Annual Releases  
 Comparison of Action Alternatives to No Action Alternative  
 Average Values

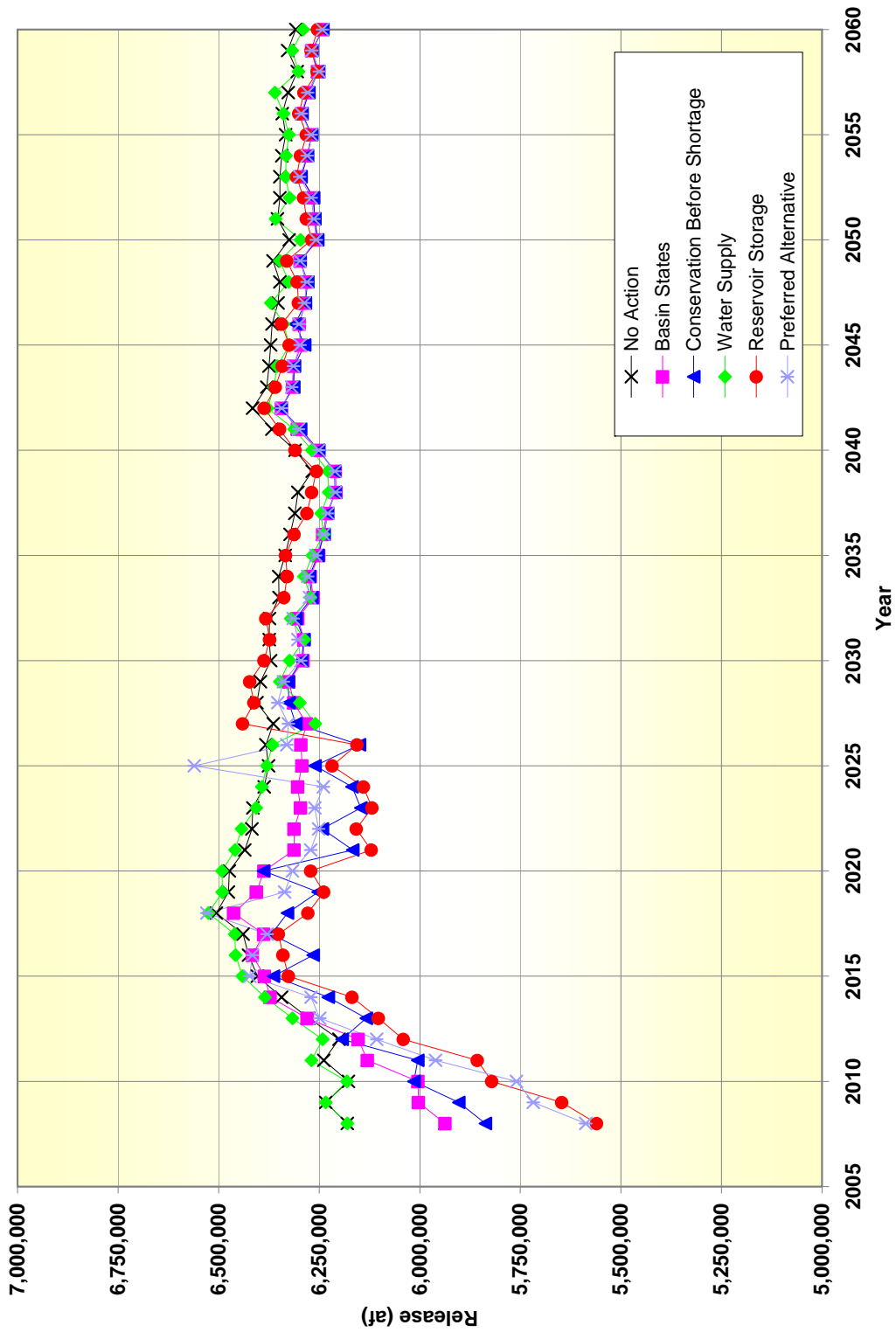


Figure P- EP-9  
 Headgate Rock Powerplant Annual Energy Production  
 Comparison of Action Alternatives to No Action Alternative  
 90<sup>th</sup>, 50<sup>th</sup>, and 10<sup>th</sup> Percentile Values

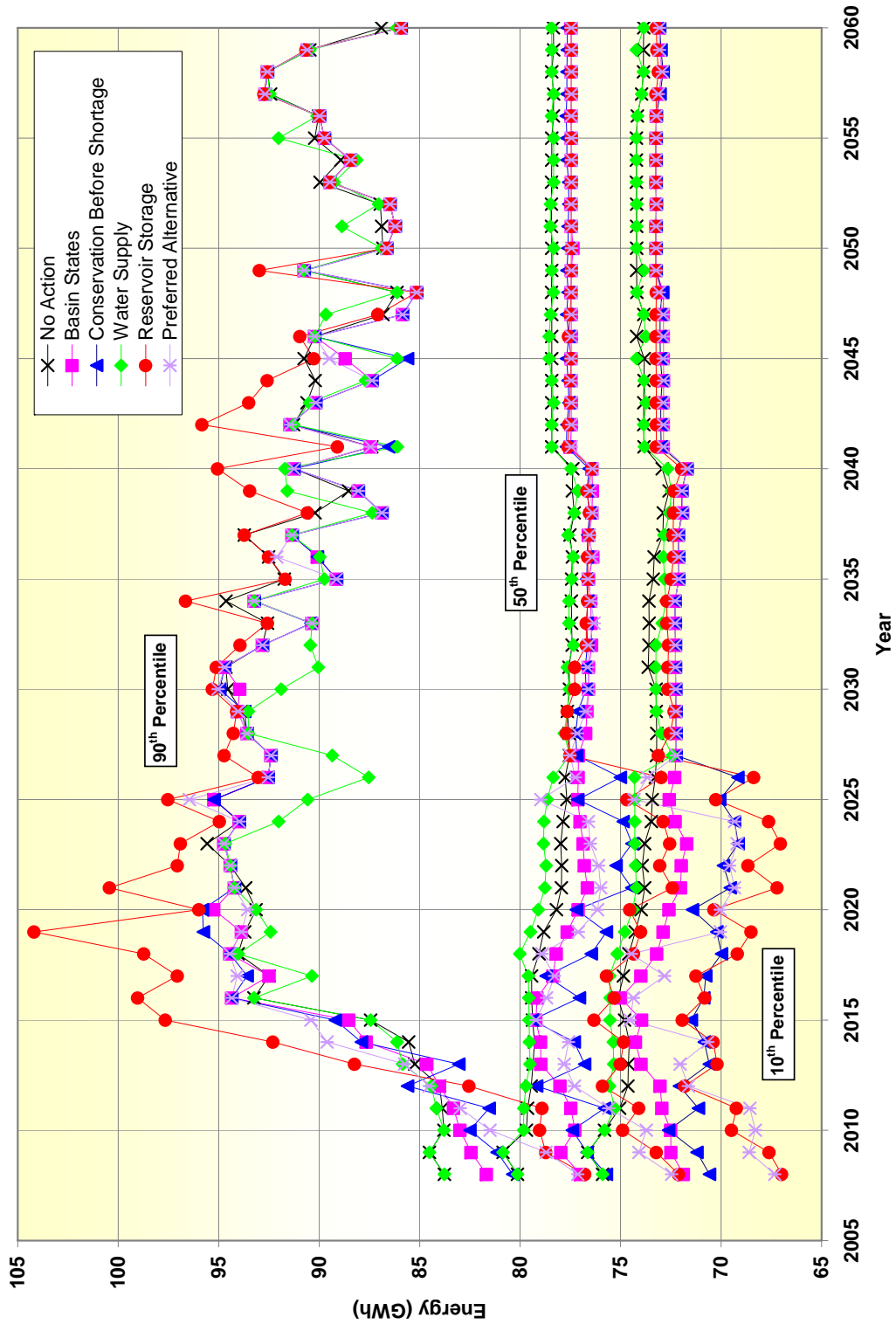


Figure P- EP-10  
 Headgate Rock Powerplant Annual Energy Production  
 Comparison of Action Alternatives to No Action Alternative  
 Average Values

