

Figure 3.3-4
Historic Lake Powell Water Levels

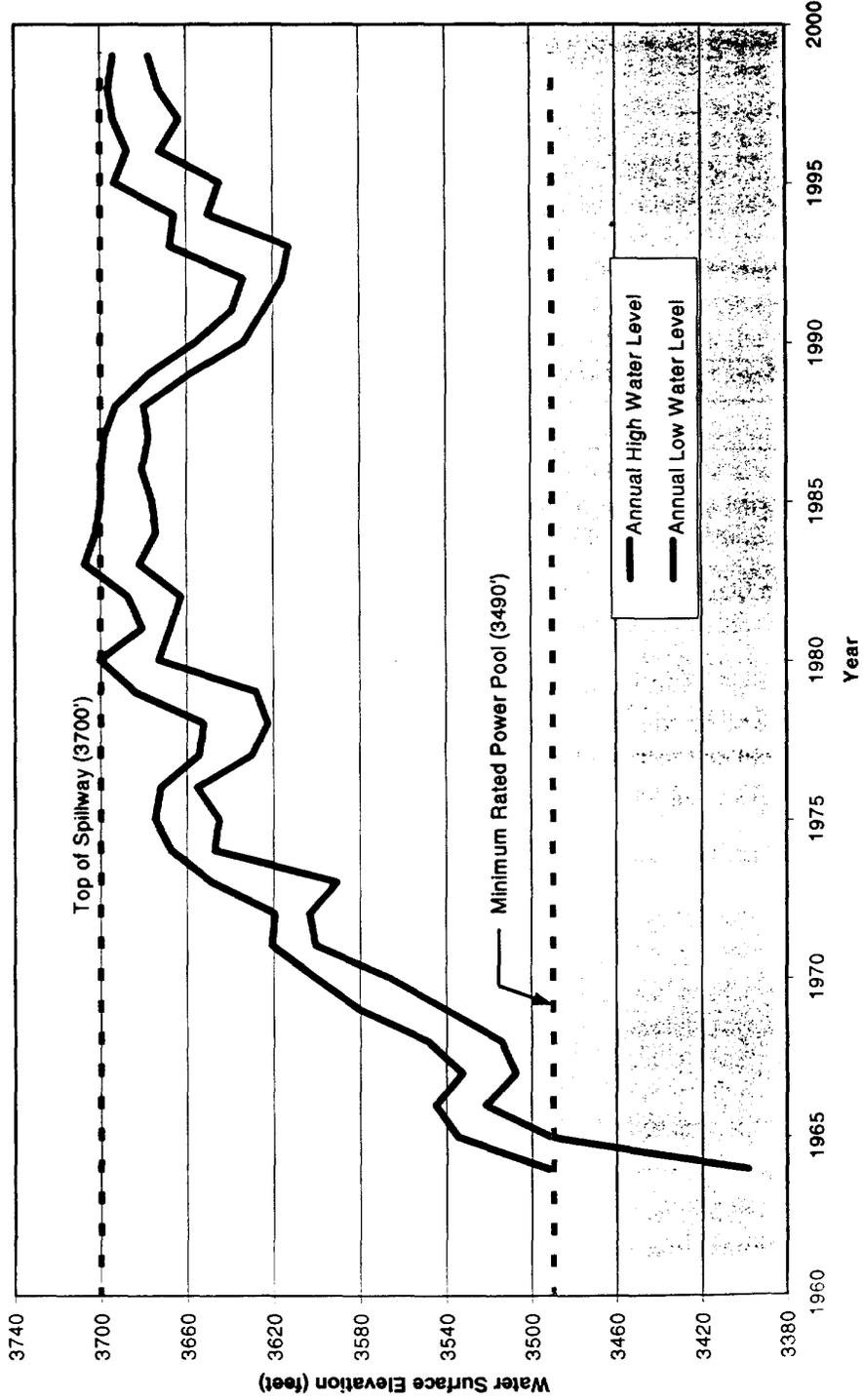


Figure 3.9-1
 Lake Powell End of July Water Elevations
 Comparison of Surplus Alternatives to Baseline Conditions
 90th, 50th and 10th Percentile Values

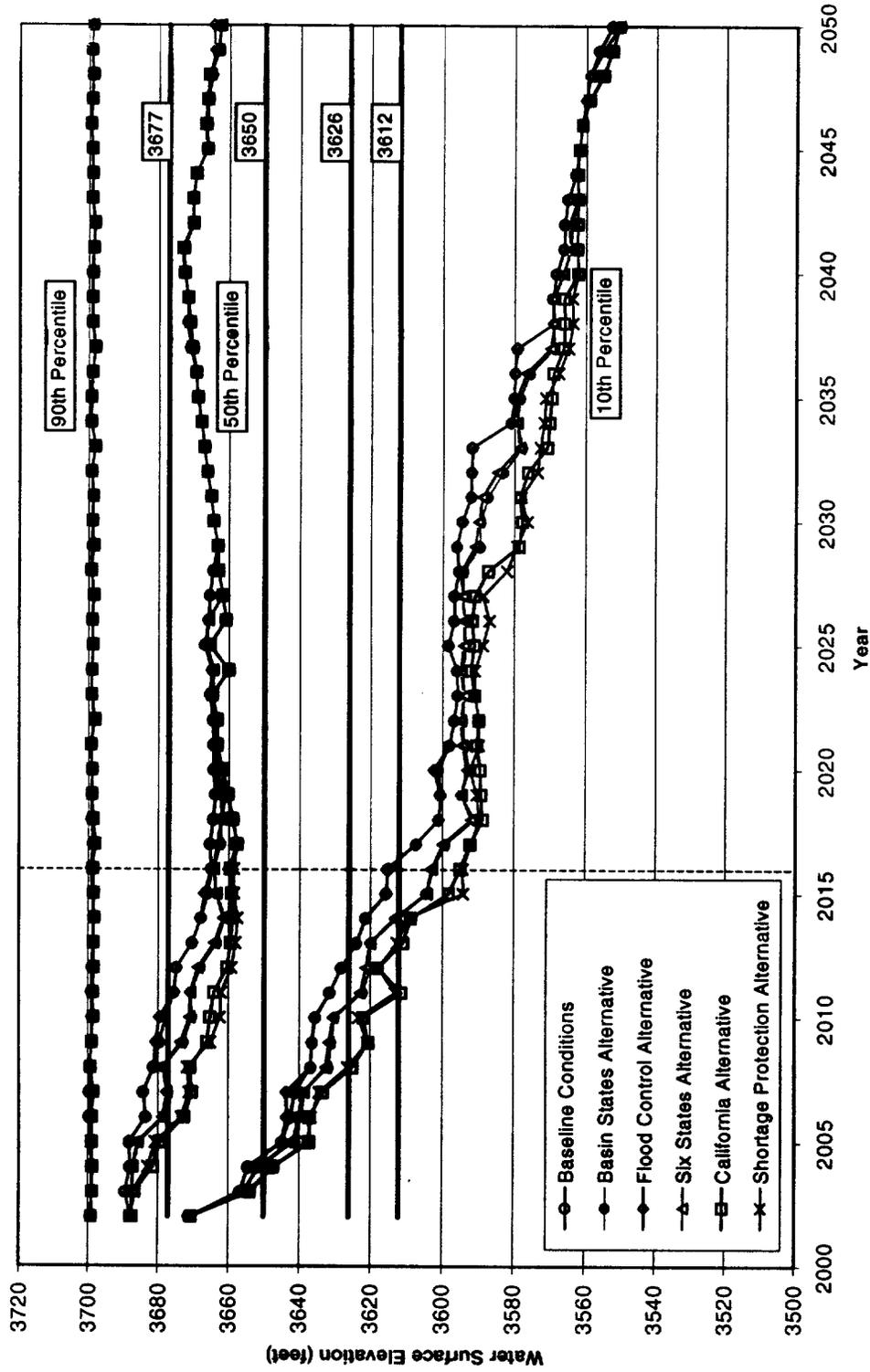
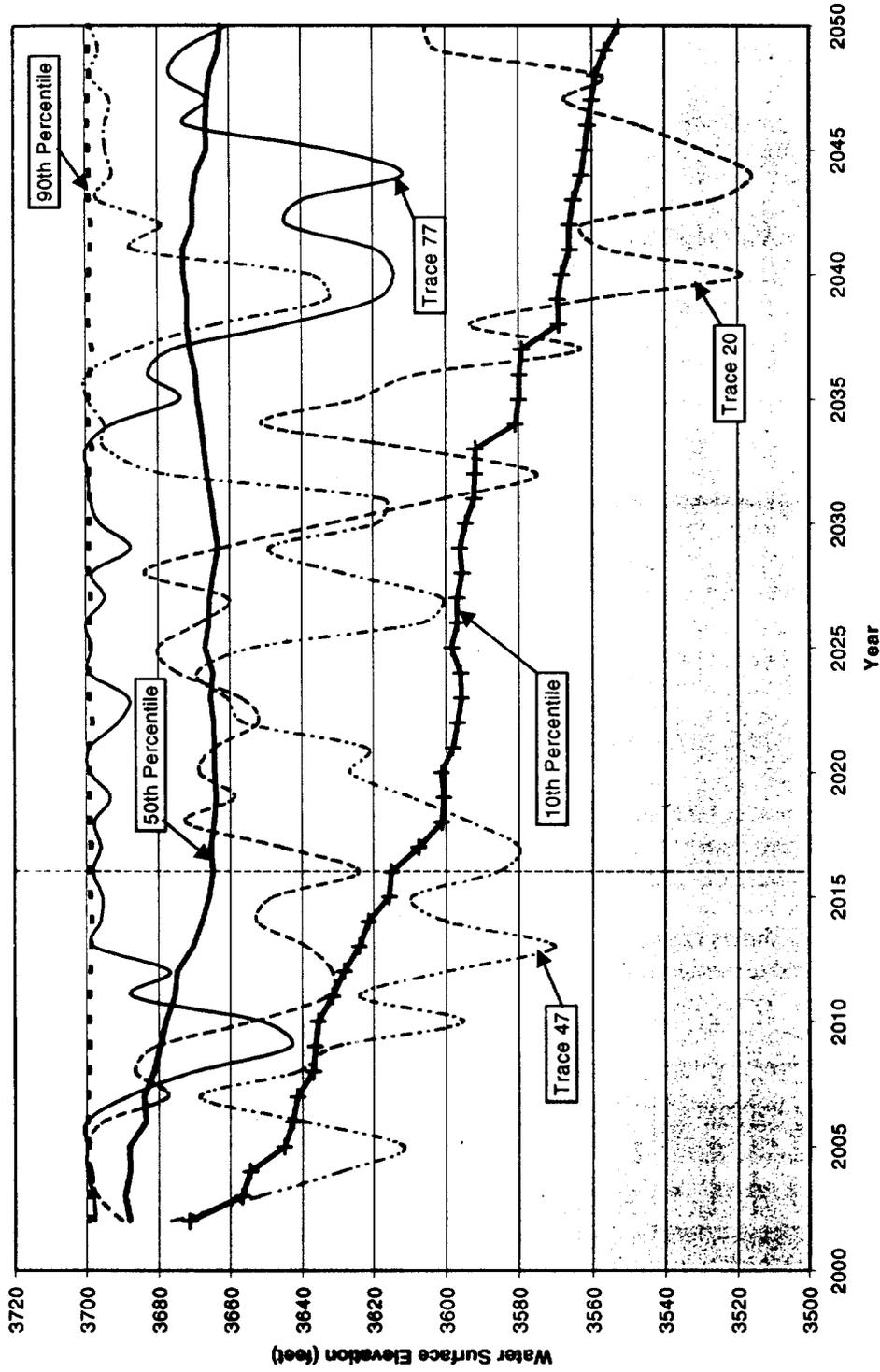


Figure 3.3-5
Lake Powell End-of-July Water Elevations Under Baseline Conditions
90th, 50th and 10th Percentile Values and Representative Traces



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

3.6.2.3 ENVIRONMENTAL CONSEQUENCES

The effects of the interim surplus criteria 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 baseline conditions, and then compares the probability of BHBF releases under each interim surplus criteria alternative with the baseline conditions.

Figure 3.6-1 shows the probabilities that BHBF releases could be made under baseline conditions and the action alternatives. The plots show that the probabilities will decrease over the first decade to an irregular range of approximately 10 to 15 percent or lower, which is maintained until a slight rising trend appears in the last 15 years of the period of analysis. The trends result from the interaction of various factors, including projected increases in depletions by the Upper Division states and the requirements for equalization of storage in Lakes Powell and Mead. The operational parameter most directly comparable to the plotted relationships is the future median water level of Lake Powell. As can be seen on Figure 3.3-6, the median level of the reservoir is projected to recover somewhat in the last 15 years of the period of analysis. This correlates to the slight rise in BHBF release probabilities in the final 15 years.

Table 3.6-1 summarizes the BHBF release probabilities during the interim period and the subsequent period to 2050, based on the data plotted in Figure 3.6-1. The table reflects the higher average probability during the interim period than during the succeeding period ending in 2050.

Table 3.6-1
Probabilities of BHBF Releases from Glen Canyon Dam

Period	Percent of Time That Conditions Needed for BHBF Releases Would Occur at Lake Powell					
	Baseline Condition	Basin States Alternative	Flood Control Alternative	Six States Alternative	California Alternative	Shortage Protection Alternative
Through 2016	15.9%	14.8%	15.9%	14.9%	13.0%	13.0%
2017-2050	13.5%	13.4%	13.5%	13.4%	13.2%	13.2%

Table 3.6-2 summarizes the probabilities that minimum releases would occur during the interim period and the subsequent period to 2050, based on data plotted in Figure 3.6-2. Probabilities are summarized by water year because releases from Glen Canyon Dam are accounted for by water year under provisions of the LROC. The results indicate that under baseline conditions, the probability of 8.23 maf annual releases from the dam is approximately 38.2 percent during the interim period and 61.6 percent during the subsequent period ending in 2050. The probabilities under all alternatives are similar to those under baseline conditions after 2006. Under the Flood Control Alternative, the probability is approximately the same as for baseline conditions, as shown on Table 3.6-2. The probabilities under the remaining four interim surplus criteria alternatives during the interim period are one to two percent less than under baseline conditions. During the subsequent period through 2050, the probabilities resulting from the remaining four surplus criteria would be one to two percent higher than under baseline conditions.

Table 3.6-2
Probability of Minimum Glen Canyon Dam Releases
(Annual Releases of 8.23 maf)

Period (Water Years)	Baseline Condition	Basin States Alternative	Flood Control Alternative	Six States Alternative	California Alternative	Shortage Protection Alternative
Through 2016	38.2%	36.3%	38.4%	36.2%	35.8%	36.3%
2017-2050	61.6%	61.9%	61.6%	61.9%	62.2%	62.1%

Note: The "water year" on which this accounting is based extends from October 1 to September 30.

3.6.4 FLOODING DOWNSTREAM OF HOOVER DAM

Under the BCPA, flood control was specified as the project purpose having first priority for the operation of Hoover Dam. Subsequently, Section 7 of the Flood Control Act of 1944 established that the Secretary of War (now the Corps) will prescribe regulations for flood control for projects authorized, wholly or in part, for such purposes.

The Los Angeles District of the Corps published the current flood control regulations in the *Water Control Manual for Flood Control, Hoover Dam and Lake Mead Colorado River, Nevada and Arizona (Water Control Manual)* dated December 1982. The Field Working Agreement between Corps and Reclamation for the flood control operation of Hoover Dam and Lake Mead, as prescribed by the Water Control Manual, was signed on February 8, 1984. The flood control plan is the result of a coordinated effort between the Corps and Reclamation; however, the Corps is responsible for providing the flood control regulations and has authority for final approval. The Secretary is responsible for operating Hoover Dam in accordance with these regulations. Any deviation from the flood control operating instructions must be authorized by the Corps.