

Choosing your period of record when looking backwards

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Answering the basic question of “how much water is in the Colorado River” has been the central application of hydrologic science to the river’s management for more than a century. The question is not just how much water is in the river today, but rather how much has there been in the past and, critically important for planning, how much might there be in the future?

From the first attempts to answer this questions in the early 20th century, efforts to determine the river’s flow have grappled with a number of foundational questions. One of the most important is what period of record should be used to determine the river’s “average” flow and, therefore, the resulting supply of water available under “normal” conditions?

At each step of the Colorado River’s development across the 20th century, choices have been made about this and other critical questions that have had profound influences on the resulting development decisions. Most often those choices have had the effect of biasing the answer to the central question – How much water does the Colorado River actually have? – toward a presumption of more rather than less water.

Emptying reservoirs across the 21st century have made clear the error in that presumption. But the mistakes made in understanding, applying, and mis-applying the science of the river’s natural flow remain largely unexamined.