Lake Mead simulation: mandatory Drought Contingency Plan cutbacks for Steady Inflow Scenarios

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Description

This is an R Markdown document. This document shows the effect of 2019 mandatory Drought Contingency Plan (DCP) cutbacks (conservation) on Lake Mead's elevation/storage for different scenarios of steady reservoir inflow every year. The inflow scenarios range from 7 to 14 maf per year every year. Key plots include:

1. A line graph compares the schedules of total mandatory cutbacks by 2008 Interim Guidelines and 2019 DCP. Dashed 1:1 lines show required cutbacks to avoid Dead Pool and to protect 1,025 feet (6.0 maf storage).
2. **The most important plot** Line plot shows evolution of Lake Mead Active storage (y-axis) over time (x-axis) for mandatory DCP cutbacks with different steady inflow scenarios. These inflow scenarios range from 7 maf every year to 14 maf every year. Pink area denotes the storage volumes/elevations of drought contingency plan releases. Red area denotes lower storage. Simulations assume max DCP cutback in red area below 1,025 feet but in reality, the Lower Basin States and Mexico will renegotiate for larger mandatory cutbacks.

Data from 2019 Lower Basin Drought Contingency Plan (DCP), U.S.-Mexico Minute 323, and CRSS.

Findings (Recommendations in bold)

Requested Citation

David E. Rosenberg (2021), "Lake Mead simulation: mandatory Drought Contingency Plan cutbacks for Steady Inflow Scenarios." Utah State University. Logan, Utah. https://github.com/dzeke/ColoradoRiverFutures/tree/master/TimeToDeadPool

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## [1] 2
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## [1] 5
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Figure 1. Mandatory Conservation Schedules by DCP and Interim Shortage Guidelines

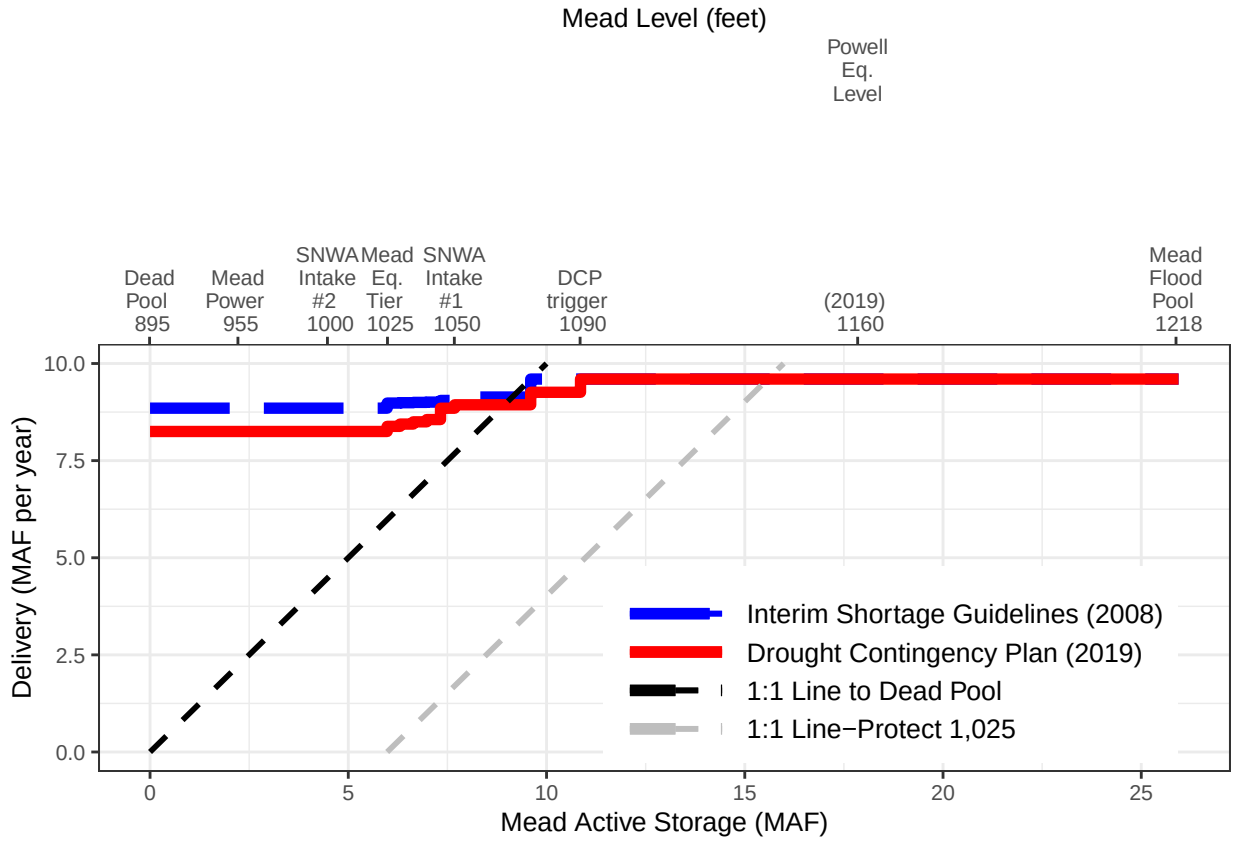

Figure 2. Simulation of Lake Mead active storage over time for different scenarios of steady reservoir inflow (blue contours and white boxes, million acre-feet per year).