National Academies Committee on the Future of Drought in the United States

Decision-making on the Colorado River

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Overview of the Colorado River System

- 16.5 million acre-feet (maf) allocated annually
  - 7.5 maf each to Upper and Lower Basins
  - 1.5 maf to Mexico
- 14.6 maf average annual natural flow in the Upper Basin (1906-2024)
- 12.4 maf average annual natural flow in the Upper Basin (2000-2024)
- Inflows are highly variable year to year
- 60 maf of storage (~ 4X the annual inflow)
- Operations and water deliveries governed by the “Law of the River”

* 2021 – 2024 provisional

Colorado River Management Objectives

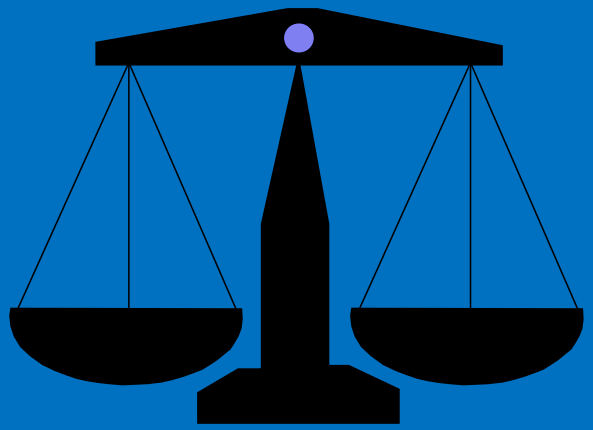
- Provide flood control and river regulation
- Provide water for consumptive use
- Generate hydropower
- Provide recreation
- Enhance and maintain ecosystem habitat
- Recover and protect endangered species

These objectives are often in conflict.

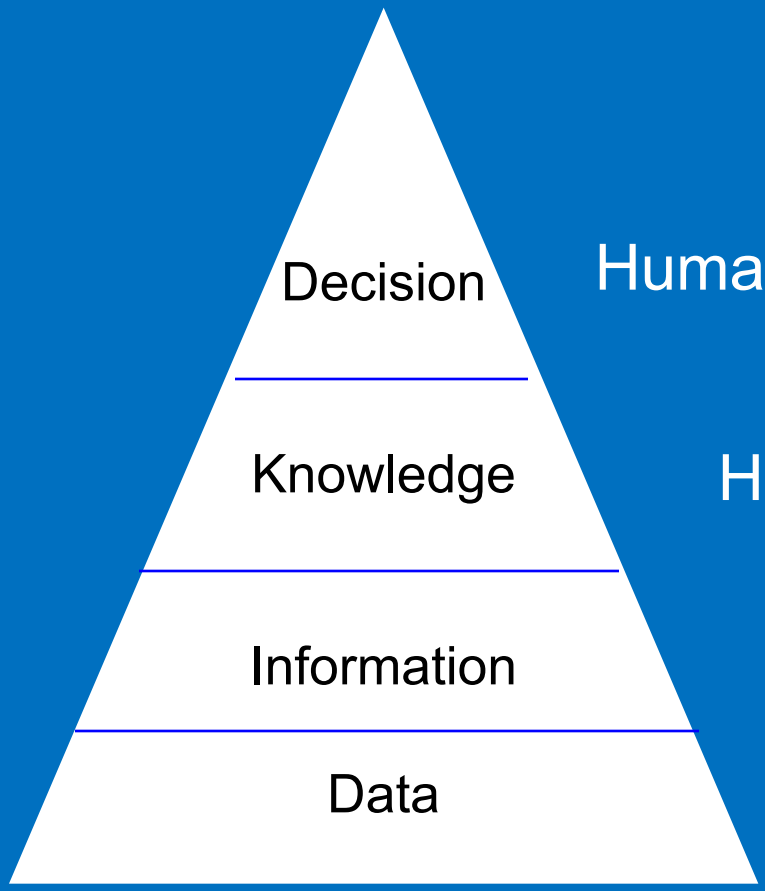
We seek equitable balance of the objectives.

Considerations for Achieving an Equitable Balance in Decision-Making

- Legal and political constraints
- Stakeholder perspectives
- Sound technical knowledge



Role of Technical Data, Information, and Knowledge in Decision-Making



Human judgment incorporating other considerations

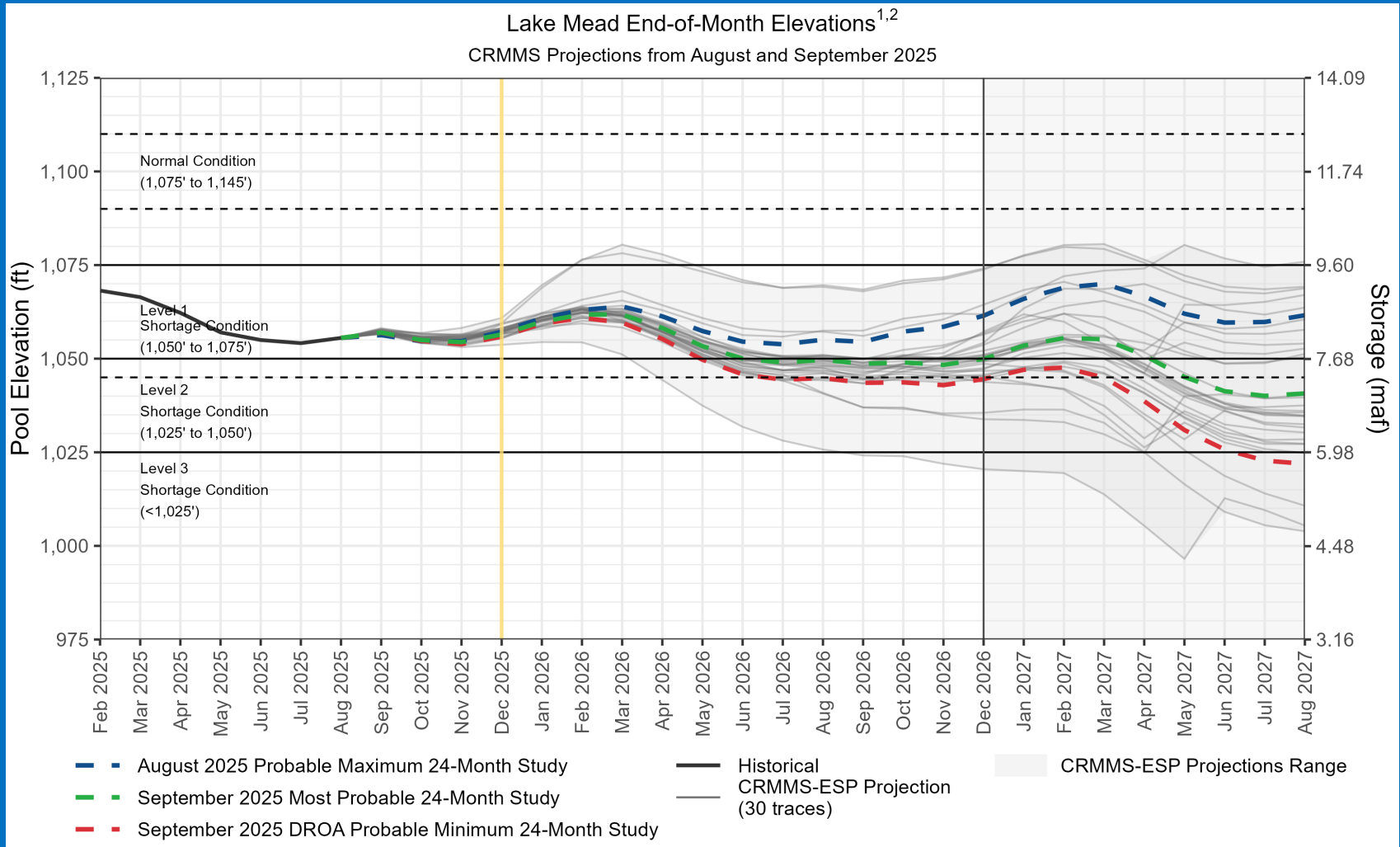
Human interpretation and intuition

Analysis and synthesis

Collection, QA/QC, processing

Spatial Resolution/ Time Horizon	Operational Activity	Decisions
Basin-wide over decades	Long-term Planning	Operating Criteria
Basin-wide over 1-2 years	Mid-term Operations	Annual Operating Plan
Sub-basin over 4-6 weeks	Short-term Scheduling	Water and Power Schedules
		Unit Commitment Economic Dispatch
Single project over 1-7 days	Real-time Control	Automatic Generation and Control

Mid-term Operations – Lake Mead



[1]For modeling purposes, simulated years beyond 2026 assume a continuation of the 2007 Interim Guidelines including the 2024 Supplement to the 2007 Interim Guidelines (no additional SEIS conservation is assumed to occur after 2026), the 2019 Colorado River Basin Drought Contingency Plans, and Minute 323 including the Binational Water Scarcity Contingency Plan. With the exception of certain provisions related to ICS recovery and Upper Basin Demand management, operations under these agreements are in effect through 2026.

[2]For modeling purposes, this graphic contains existing operational assumptions built into CRMMS that constrain Glen Canyon Dam releases to prevent Lake Powell from falling below elevation 3,500 feet. As described in Sections 6.E and 7.B of the Supplement to the 2007 Colorado River Interim Guidelines, Reclamation will consider all tools that are available to avoid Lake Powell elevation declining below 3,500 feet and any actual constraining of Lake Powell releases is subject to appropriate consultation between Reclamation and other Basin partners with respect to the implementation of potential releases. The Probable Minimum also shows Lake Mead elevations without any Glen Canyon Dam release constraints so Reclamation and Basin partners can assess the hydrology and be prepared to discuss appropriate solutions.

— BUREAU OF —
RECLAMATION

Southern Nevada Water Authority's Lower Intake

From below Lake Mead, prior to watering and removal of the plug