FILLING THE GAP: INCREASED OPERATIONAL DISCRETION?

Sydney Weiss

Floodplain Management Association Conference, 2018 – Reno, NV
OBJECTIVES

- Background
- The Challenge
- Action
- Criterion
- Operational Discretion
- Advantages
- Disadvantages
- Conclusion

Cougar Dam Rule Curve, USACE 1964
BACKGROUND

Oroville Dam Overtopping, 2017

- Limited water resources – reliant on carryover storage

- Aging infrastructure, demanding environmental flow requirements, catastrophic flood events

- Multi-purposed reservoirs – storing or not storing water

- Currently formal documentation exists establishing operational guidelines - CFR, Title 33, Chapter 11, Part 208, Section 208

- Regulations date back to dams' first construction
THE CHALLENGE

- The need to review, update, and approve new protocols
- Accepting not all 1,300+ dams will be updated quickly
- What if we know that current protocols are less than optimum?
- How should operators handle this challenge?
- Should they operate by the prescription, even if they have the knowledge to improve operation?
• Straightforward solution, but with legal and institutional hurdles.

• Flexibility vs Rigidity

• Use of the knowledge and experience of reservoir operators

• Seasoned operators exposed to uncharacteristic/extreme events – anecdotal database
CRITERION

- Who gets to practice flexible operation and who does not?
- *Informed discretion* - decisions made where sound data/information is available
  - Impeccible field data
  - Basin condition
  - Downstream conditions
  - 24-, 48-, and 72-hour forecasts
  - Snowpack conditions

Network of field observations

- Basin Conditions
- Downstream Conditions
- Snowpack Conditions
- Forecasts
OPERATIONAL DISCRETION

- Fill-up/drawdown based on snowpack contributions
  - High vs low snow year

- Rain on snow event

- Assessment of previous years' conditions

- Predictive measures taken for high magnitude storms

Folsom Lake – Temporal Differences
ADVANTAGES

• Flexibility
• Highly responsive operation – from passive to active
• Low cost
• Technology investment will be useful for future projects
• Trading of ideas between operators (community and spread of knowledge)
• In-house resources
DISADVANTAGES

• Accountability – legal jeopardy

• Do operators accept liability? If not, then who?

• Amnesty for operators

• Legal hurdles will determine success of program

• Do not want operators to resort to old practices because of potential retribution
CONCLUSION

- Dams face new hydrologic regimes with no way to tackle it
- Increased operational discretion to fill the gap between current protocols and updated ones
- If nothing changes, decisions still need to be made.
- Improved accuracy and data will enhance the likelihood of a successful program
THANK YOU FOR YOUR TIME.