Reservoir Sediment Management Actions
Reacting to Sediment (non sustainable actions)

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What do we do where there are no plans to manage sediment?

We wait until there is a quantifiable problem and then we choose the least cost solution.

This is the traditional O&M Paradigm.
Common Non-Sustainable Actions Taken to Address Sedimentation

- Pressure Flushing
- Targeted Dredging
- Pool Reallocation
- Pool/Dam Raise
- New Construction

These actions used more than all other sustainable sediment management actions

Fall within the purview of maintenance under current water control manuals
Pressure Flushing

- This condition will increase water velocity through deposited sediments, redistributing sediments in the lowered pool and transporting some sediment below dam.
- Essentially using the gates at a time when they are not normally needed to manage water.
- Partially drawing down the reservoir may increase the area of influence for the flush.

**Pressure Flushing (Partial Drawdown)**

- Deposition in Pool → Erosion in Channel
- Pressure flushing (partial drawdown) redistributes sediment, it does remove sediment appreciably.
Chery Creek Dam Intake Scour
Cherry Creek Dam 2016 Multibeam Survey
Hydraulic Dredging of Reservoir Deposits

- Hydraulic dredging, usually with a cutter head dredge is used for localized sediment removal.
- Often sediment is redeposited in the reservoir to reduce need for upland disposal.
- Does not address the source or transport mechanisms for sediment movement.
Pool Reallocation

- Reallocation studies have occurred at dozens of USACE Dam
- Revaluation of water use needs in the light of changing conditions (sedimentation, hydrology, recreation usage, etc)
- Chatfield Dam has undertaken a reallocation study.
  - reallocated 20K AF from flood control to joint-use flood control and water supply storage.
  - ROD in 2014 – in transition phase now
Reservoir Pool/Dam Raises

- If no other storage/usage solutions are available and additional storage is needed
- Requires the same level of engineering/design as new construction
- Many reservoir shorelines are developed, making this difficult
- Chatfield reallocation is essentially a pool raise as the 20k AF of additional storage for water supply can effectively raise the ‘normal’ pool
New Construction

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