

REVIEW OF THE RESERVOIR SEDIMENTATION INFORMATION (RSI) DATABASE AND INVENTORY OF KNOWN SEDIMENT ISSUES AT USACE RESERVOIRS

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USACE RESERVOIR

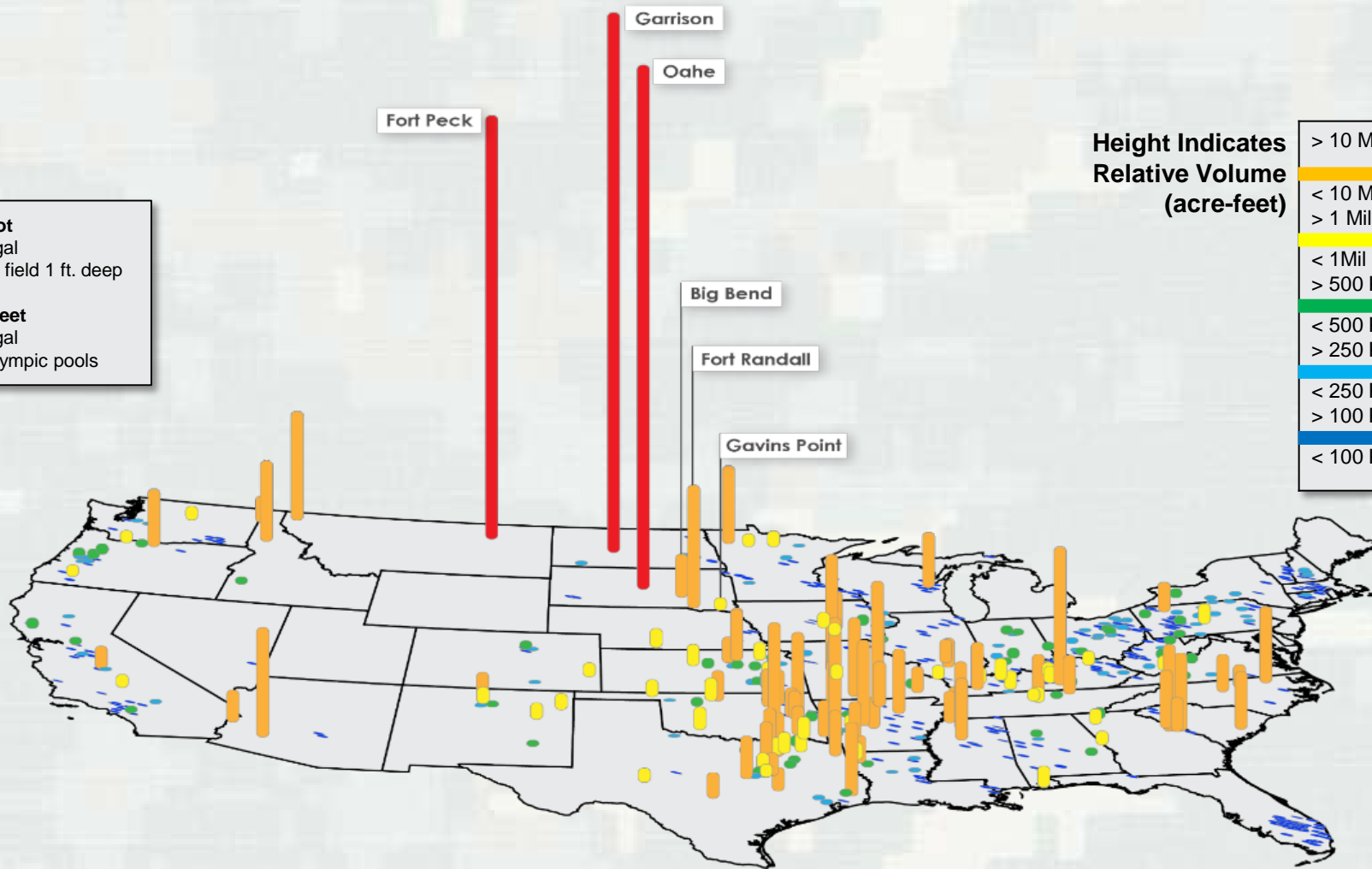
STORAGE CAPACITY

1 acre foot
~ 326 K gal
~ football field 1 ft. deep

1M acre feet
~ 326 B gal
~ ½ M Olympic pools

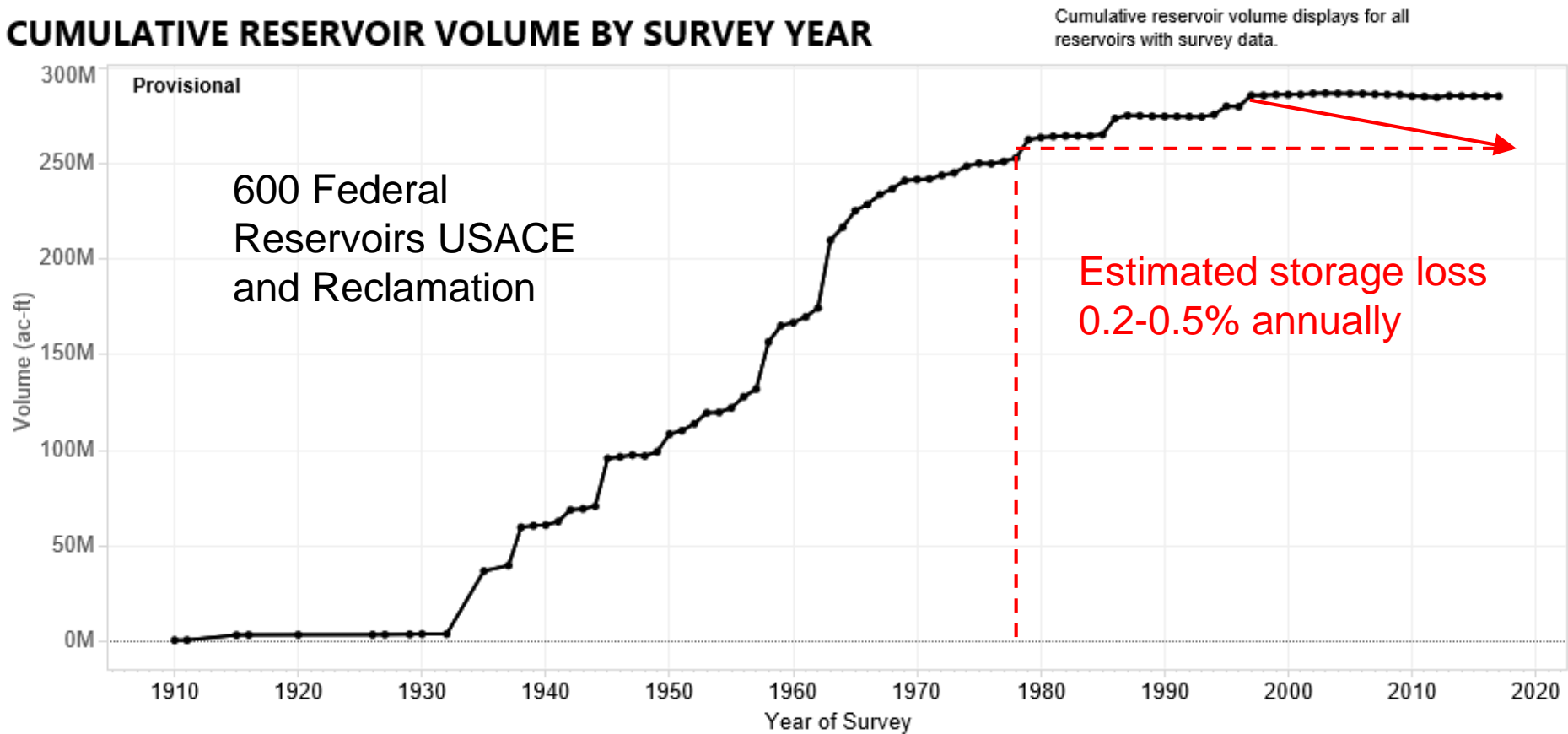
Height Indicates
Relative Volume
(acre-feet)

> 10 Mil
< 10 Mil to > 1 Mil
< 1Mil to > 500 K
< 500 K to > 250 K
< 250 K to > 100 K
< 100 K



Do we have an accurate picture of Reservoir Sedimentation?

CUMULATIVE RESERVOIR VOLUME BY SURVEY YEAR





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Reservoir Information

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Sedimentation Management

Gavins Point Dam - SD01094 - 100591

Indicates that sedimentation removal actions were taken, the method used, and the amount of sediment removed.

Data originates in the CDS system. Any modifications will be reflected there.

<input type="checkbox"/>	Date	Method	Amount Removed (acft)	Last Updated	Document Count
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[Edit](#)

For O&M Dredging

Sedimentation Depletion Documents

No sedimentation depletion documents found

Please enter a value for all fields before clicking the Upload Document button.

* File Name:

[Browse...](#)

* Document Date:

04/27/2018

* Document Type:

- Select Document Type - ▾

* Sedimentation Date:

- Select Sedimentation Date - ▾

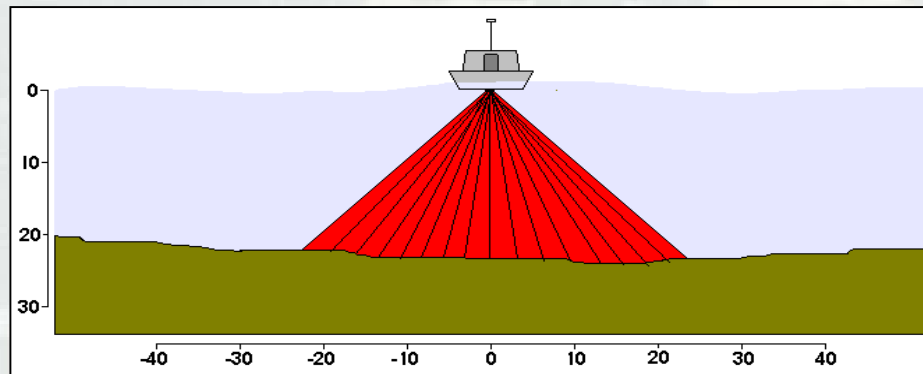
* Description:

[Upload Document](#)

What about other methods, flushing, sluicing, bypass, etc?

Current and Future Enhancements to RSI

- Data continues to be input and reviewed by District Data Managers
- Additional fields added to incorporate metadata for each dam – sediment management included (FY18 execution unknown)
- Inclusion of Bureau of Reclamation data
- Refinement of summary figures and reports for use as a screening tool
- Public accessibility when all data is approved



What are the reservoir sedimentation impacts at USACE Water Storage Reservoirs?



- Regional Sediment Management Program (RSM) <http://rsm.usace.army.mil> funded project to gather information about sediment management at reservoirs directly through contact with Ops staff
- Phone surveys w/email follow up to cover nearly 400 USACE water storage reservoirs (Lock and Dam navigation projects not included)



Identifying Reservoirs and Points of Contact

- Reservoir identified from RSI database from over 700+
- Eliminated those with 'Lock and Dam' titles
- Resulted in nearly 400 'water storage dams'
- POC info started with ERDC run OPM database (a little out of date), expanded by Outlook search and strategic emails
- Resulted in POC info for about 85% of projects
- That info has been about 75% correct
- Follow up conversations required to find correct POCs



Initial Findings and Discussions with OPM's

- To date, approximately 275 reservoir POC's contacted
- Budgeted time for each call has been significantly exceeded
- The majority of identified sediment problems are associated with lake access, aggradation above pool, and water intakes
- Major impacts to Hydropower, Navigation, and Flood Control not apparent YET.
- Many OPM asking for assistance in determining best sediment management



Example 1: Mount Morris Dam – Buffalo District

Sediment Problems

“Receives sediment contribution from a very silty channel as well as floatable debris (7-10,000 cu. yd. bed silt, 3,000 cu. yd. floatable debris), heavy silt deposition near intakes, contributing area made up of farmland increasing the amount of sediment being carried to the lake and dam, concrete gravity dam in a deep canyon with a dry bed for a significant part of the year.”



Example 1: Mount Morris Dam – Buffalo District

Corrective Measures

“Annual sediment management program for floatable and bed sediment reduction, when the bed is dry they take bulldozers and excavators into the channel, floatable debris goes through drum chipper, silt is transported upstream and an effort is made to immobilize it (place sediment on existing silt bar and smooth out to allow for vegetative growth to stabilize)”

Needed Actions

“Have H&H engineers currently looking into more productive ways to manage the sediment like excavating the channel to a specific depth and how close to excavate to the intake.”



Example 2: Howard Hanson Dam – Seattle District

Sediment Problems

“At Howard Hanson dam, a 2007 survey suggested that we have lost about 1,400 acre-feet of storage since 1961 (project start) due to sediment infilling. Current storage capacity at normal full pool is about 104,300 AF, so the loss of storage represents a loss of about 1% of the original capacity, which is not very significant from a water management perspective. However, the loss of storage means that our minimum operating pool is higher than when the project first started, which does make it more challenging for our Operations staff to inspect and maintain certain project features.”



The uses of the survey data

- Help identify sediment issues beyond the simple 'gross storage loss' assessment
- Provides opportunity to share solutions across projects
- Allow for local and national prioritization of sediment management resources
- Expect to complete by Sept 2018



Questions?

Matilija Dam, CA