



— BUREAU OF —
RECLAMATION

Sediment Impoundment of Reclamation Reservoirs

Sedimentation at Twitchell Dam and Bradbury Dam

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Reclamation Seacoast Projects

- Two large-scale Federal water projects are in the California Pacific south coastal region, Twitchell Dam on the Santa Maria River and Bradbury Dam on the Santa Ynez River.
- These projects are designed to capture seasonal floodwaters that are otherwise wasted to the sea and retain the water for either groundwater infiltration or direct distribution.
- Both reservoirs have concerns and are impacted by heavy sedimentation due to erosive soils in the region.



Bradbury Dam

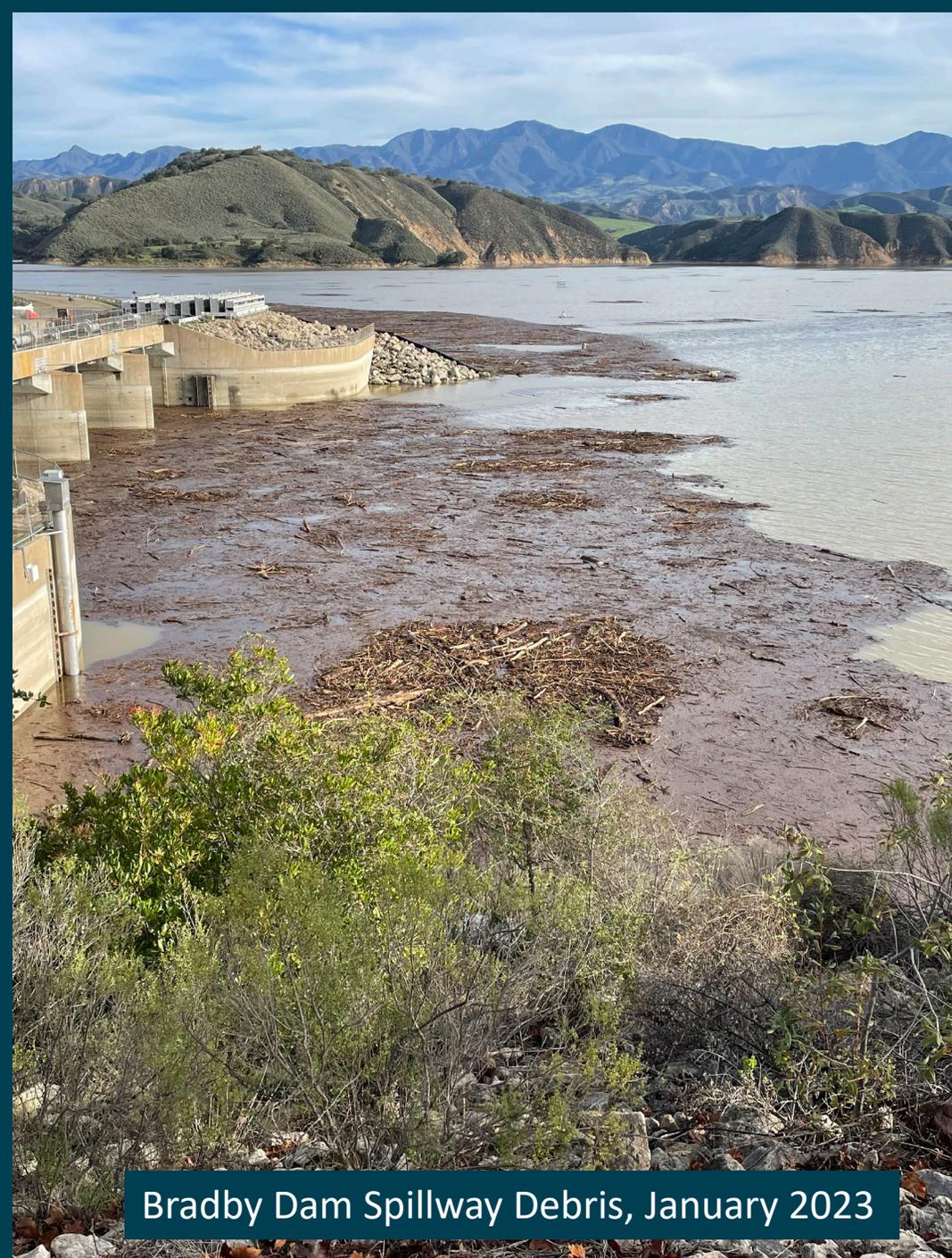


Bradbury Dam Spilling, March 2023

- Authorized as part of the Cachuma Project in 1948 and completed in 1953. This dam sits on the Santa Ynez River and is a zoned earth-fill structure with a height of 206 feet above the streambed.



- Lake Cachuma, was constructed with a capacity of 205,000 acre-feet.
- A 2021 Bathymetric Survey, calculated capacity of 193,000 acre-feet.
- January 2023 Storms resulted in more than 40 ft of reservoir rise and set records for rain intensity with 16.25 inches of rain in 24 hours.
- The facility was heavily impacted by both floating and subsurface debris.

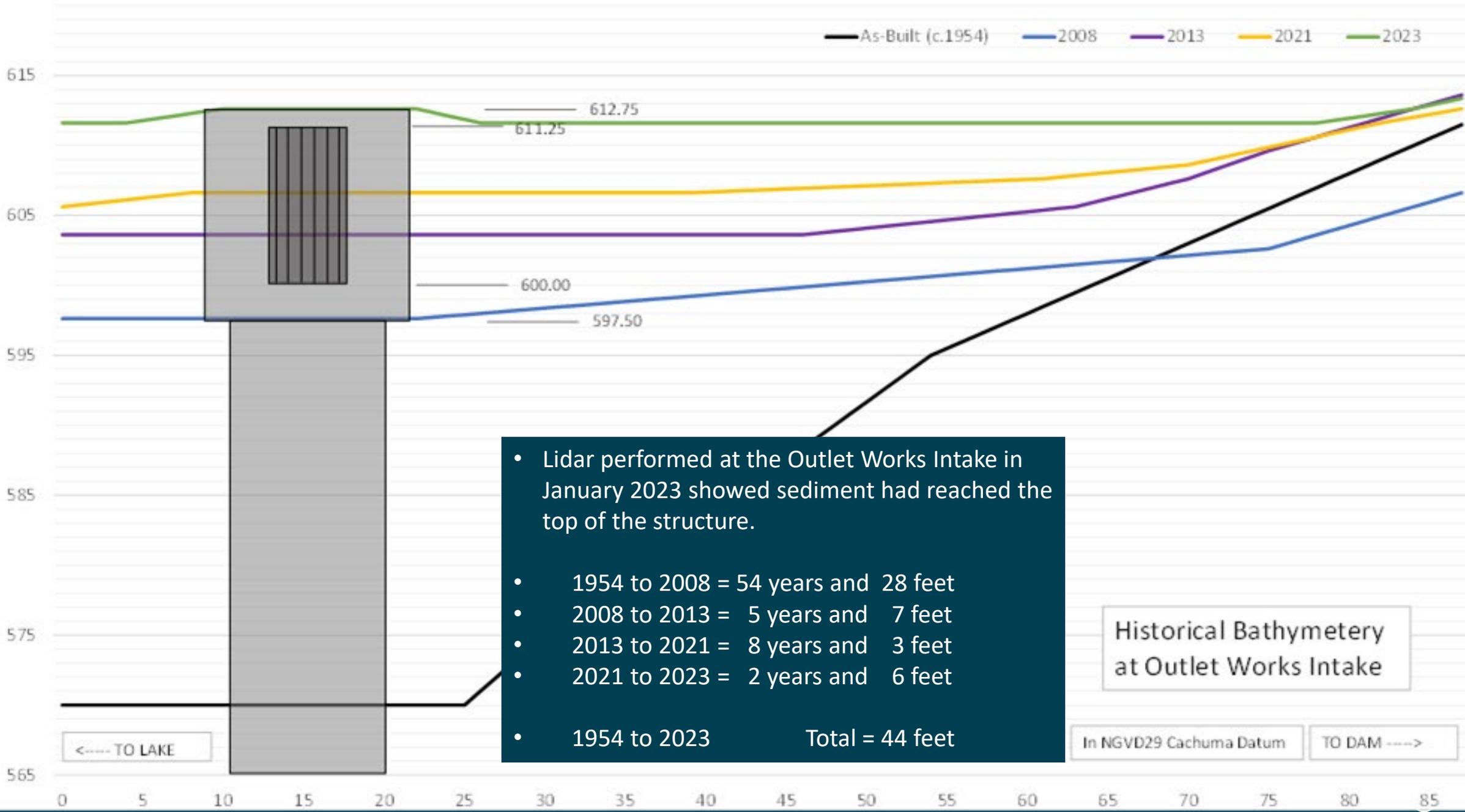


Bradby Dam Spillway Debris, January 2023

- The outlet works were in operation prior to the storm and immediately showed impacts of sediment flows within the reservoir.
- Partially open 30 inch fixed cone valves became plugged with sediment and required cycling to clear.
- One of the valves became obstructed by debris and could not be shut for the remainder of the season.



Bradbury Dam Outlet Works, January 2023



- Lidar performed at the Outlet Works Intake in January 2023 showed sediment had reached the top of the structure.
- 1954 to 2008 = 54 years and 28 feet
- 2008 to 2013 = 5 years and 7 feet
- 2013 to 2021 = 8 years and 3 feet
- 2021 to 2023 = 2 years and 6 feet
- 1954 to 2023 Total = 44 feet

Historical Bathymetry at Outlet Works Intake

Tecolote Tunnel Intake

- The water intake tower is located approximately 3 miles upstream of the dam with five intakes over 76 ft of elevation.
- The bottom intake of this tower is completely inundated with sediment.



North Portal August 2016



Dam & Outlet Works

Cachuma Lake Vista Point

San Marcos Pass Rd

Santa Ynez Shooting Range

Cachuma Lake Recreation Area

Lake Cachuma

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Tequepis Trailhead

Tecolote Tunnel to Santa Barbara

Bradby Dam and Lake Cachuma, Santa Barbara County, CA



Twitchell Dam

- Authorized as part of the Santa Maria Project in 1954 and completed in 1958.
- Twitchell was constructed with a capacity of 150,000 acre-feet.
- A 2023 Bathymetric Survey, calculated capacity of 107,926 acre-feet.

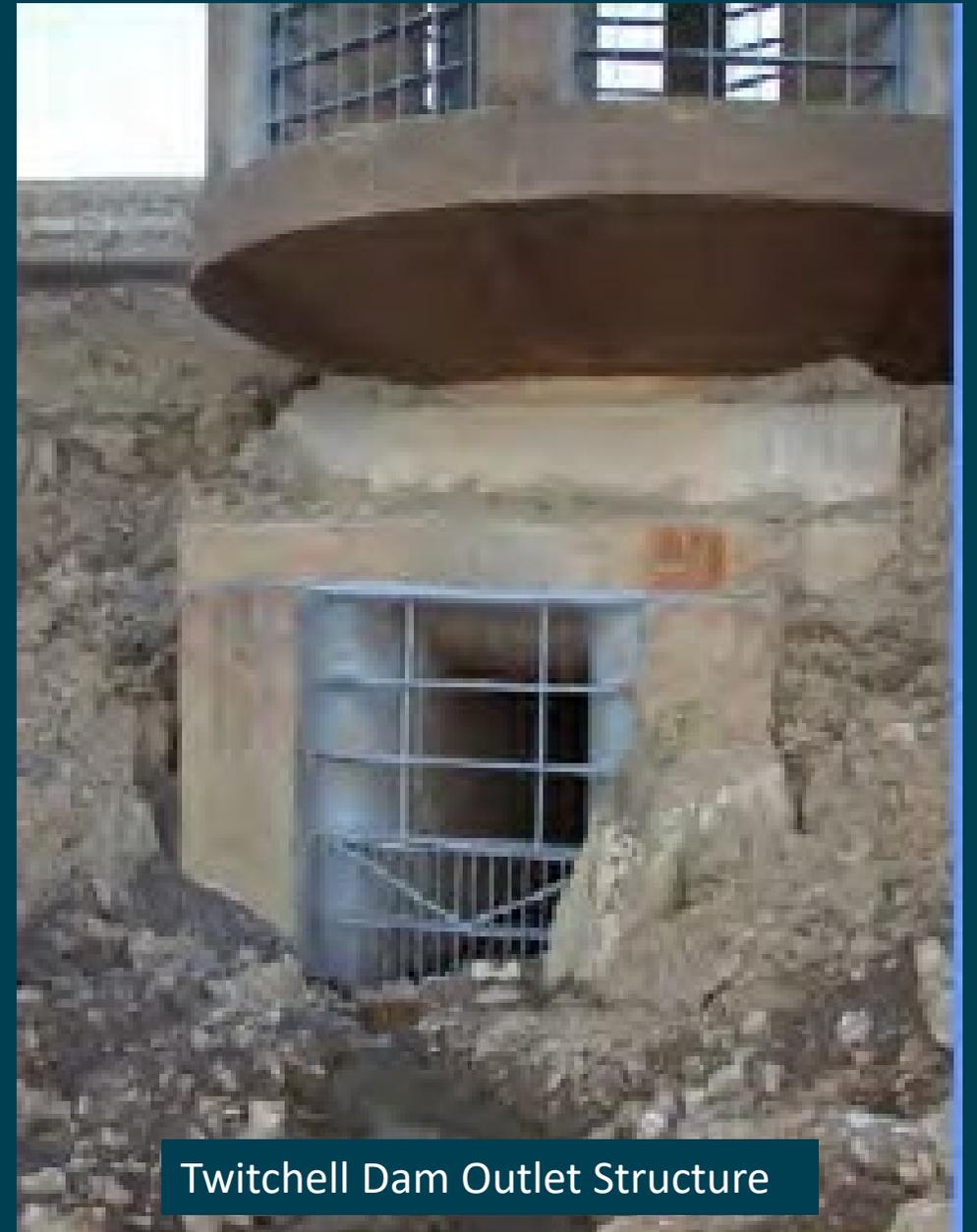


Twitchell Dam, Santa Maria CA



Twitchell Dam

- The intake tower sits partially below the lake bottom transporting large amounts of sediment during discharge.



Santa Maria River

- Downstream impacts of storm release from Twitchell Dam up to 2500 CFS had dramatic erosive effects on the downstream river channels.



Erosion on Maine St , Guadalupe CA



Erosion on Cuyama River below Twitchell Dam

Questions?

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