Example of Sediment Removal Site – Cochiti Reservoir

Guardians of the Reservoir Sediment Removal Competition

- Location: On the Rio Grande in New Mexico, 25 miles southwest of Santa Fe and 50 river miles north of Albuquerque, NM
- Reservoir Area: The permanent pool has a surface area of 1,200 acres. The top of the flood control pool is 9,347 acres.
- Reservoir Depth: Maximum reservoir depth at the full extent of the flood control pool is estimated to be ~219 feet to the conduit inverts. The maximum depth at the current permanent pool elevation is 90 feet to the conduit invert,
- Amount of Sediment: approximately 54 million cubic yards
- Sediment Type: Sediment types vary within the reservoir pool. Silts and clays are found in the main body of the lake, while silty sands are found in the delta area. Further upstream, deposition of sands and gravels occur. Debris flows from canyons surrounding the lake tend to bring in a much wider assortment of sediment sizes.
- Sensitivity of Wildlife: The deposited area in the upstream portions of the reservoir have created riparian habitat conducive to the Southwestern Willow Flycatcher (*Empidonax trailii extimus*).
- Seasonal nature of water flow: seasonal flow ranges from 400 cfs during low flow to 6,000 cfs during high flow. Average flow per month (rounded to nearest hundred cfs) for the previous 3 years seen below:

Month	Incoming Flow (cfs)
January	700
February	800
March	1400
April	2400
May	3400
June	3000
July	1600
August	1000
September	800
October	900
November	1000
December	900

- Access to roads and power supplies: Access to the reservoir is primarily near the dam, where there is vehicular access on paved roads and access to power lines. Access to the reservoir pool

further upstream is limited due to the geological constraints of the terrain. Access to this area is limited to boat and there is no power supply in the area.

- Other relevant information:
    - Some sedimentation present immediately adjacent to the dam.
    - Sediment has been found to contain radionuclides. Los Alamos National Lab is situated upstream, adjacent to a tributary that feeds into the Rio Grande
    - Density currents have been observed, facilitating movement of finer sediment through the outlet works downstream.
    - Woody debris has been problematic in rainfall-runoff events after wildfires have burned the adjacent watersheds. These events bring in sediment along with the woody debris.
    - Cochiti Dam was established as a flood and sediment control reservoir. The available sediment storage space is estimated to be about 25% less than the original design allocation.
    - Longitudinal profiles of the reservoir from repeat surveys is shown below. Station zero s at the dam.

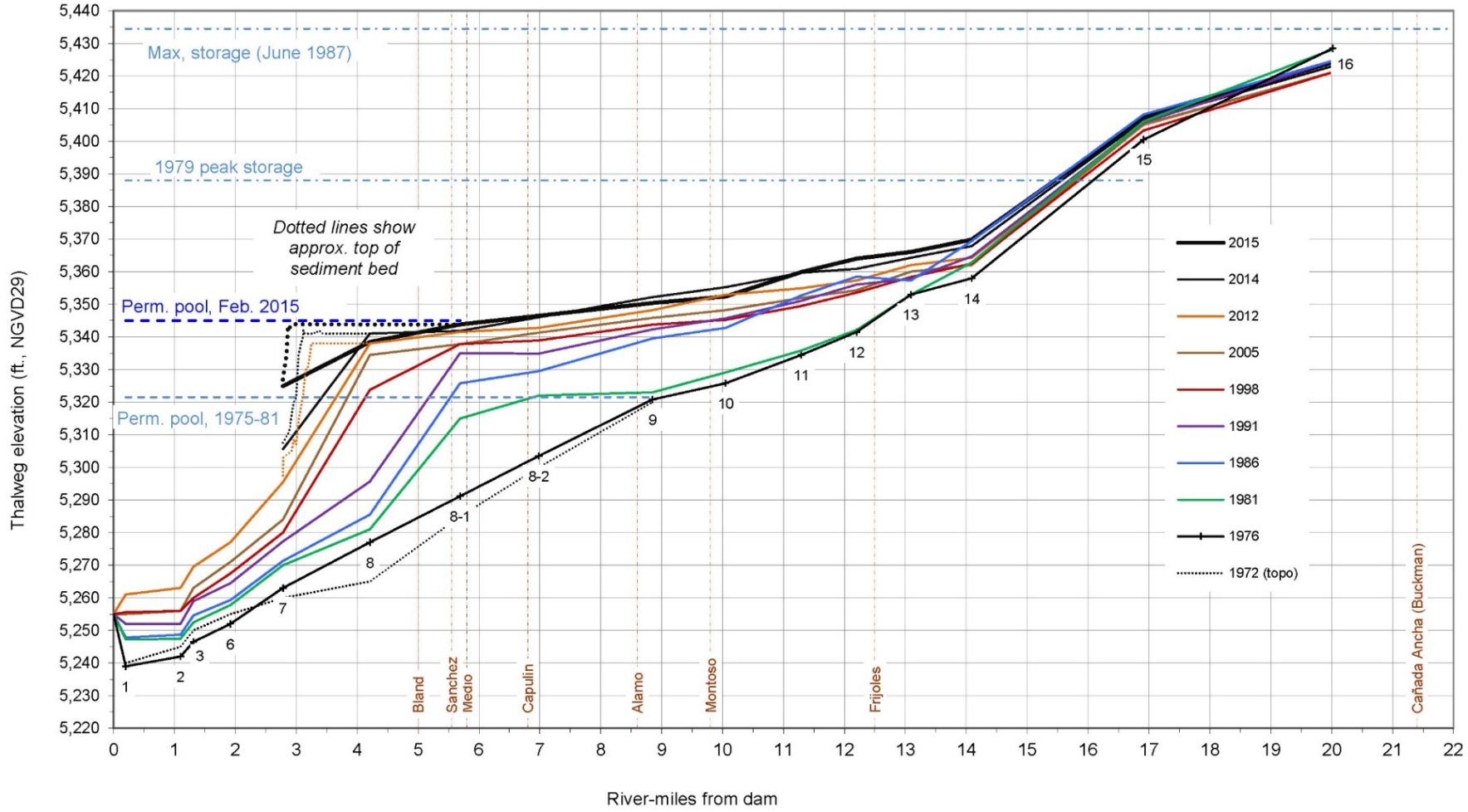

Figure 1. Longitudinal profiles from repeat survey measurements at the Cochiti Reservoir.