

Executive Summary

The data collection completed in June 2013 showed a continuing trend of above average deposition in the lower portion (Range Line 7 upstream to Range Line 9) of the study reach. It is believed that this trend is a direct result of increased sediment and debris load to the river from rainfall activity occurring on the Los Conchas¹ fire burn scar. Main stem flows are transporting the "higher than normal" quantity of material that has deposited at the arroyo-river confluences downstream towards Cochiti Lake. This phenomenon was observed at each west bank tributary with the most pronounced impacts at Frijoles, Capulin, and Cochiti Canyons.

While the higher than normal deposition has continued, the rate between this year and last is not as pronounced as it was from 2011 to 2012. The "well below average" Rio Grande spring runoff for 2013 likely played a part in this decrease. Observations during the 2013 data collection trips show that there is still significant "sediment load" available at many of the lower west bank canyon confluences that could find its way into the lake with a large monsoonal storm event this summer/fall or a closer to normal run-off next spring.

Notably however, there is significant new growth of vegetation at many of the same west bank canyon mouths. The nutrient rich ash clearly evident during the 2012 data collection trip has likely accelerated the new growth. When comparing this year's field observations and ground photography to the post fire aerial photography from 2011, this phenomenon is clearly visible. Without scouring flows within the next two years, either from the main stem or the tributary, this new growth may stabilize some of the deposited sediments and forest litter.

With the lake level about three feet higher this year than last year when the Range Lines were surveyed, a wider footprint of inundation (and swamp conditions in the overbanks) at RL 8, 8.1, and 8.2 was measured. This is explained in part by the backwater / lake affect.

At Range Line 7 there was a fairly uniform 2 feet of additional deposition when comparing this year to last. This is about half what was measured between 2011 and 2012, but still about twice what the average annual rate at this range line is. The general slope of the lake bottom upstream from RL 7 to the river/lake interface is similar to last year. The "nick point" where the river drops into the lake did not appreciably change, although there is about 2-3 feet of additional material on the bottom of the lake in this vicinity.

It is strongly recommended that an aggressive monitoring program of these Range Lines continue for the next two to three years. In doing so, the recently observed trends can be validated. With additional data regarding deposition in and near the north end of the lake, decisions regarding operation and maintenance can be made with a higher degree of confidence.

¹ June 26 to Aug 3, 2011 wildfire in the Santa Fe National Forest burning nearly 150,000 acres, including a significant portion of the Rio Grande's western watershed between Los Alamos, NM and Cochiti Pueblo.