Sedimentation Survey of Lago La Plata, Toa Alta, Puerto Rico, March–April 2015

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Introduction

Lago La Plata is operated by the Puerto Rico Aqueduct and Sewer Authority (PRASA) and is part of the San Juan Metropolitan Drainage District. The reservoir was a population of about 150,000 people. During 2013 the reservoir provided 379,600 acre-feet of water (55.8 Mm³) of water per year (about 81 million gallons per day), which is about 11% of the district's water supply. The reservoir is between 18°18'N and 18°20'N 66°13'W and 66°14'W. The reservoir was created by the construction of a dam in 1974 to create a water supply for the city of Toa Alta and its surroundings. Lago La Plata is also part of the Río de La Plata basin, which includes the Río Guadiana and Río Cañas branches. The storage capacity at construction in 1974 was 26.84 Mm³ (26,840,000 m³), with a maximum pool elevation of 52.00 m above mean sea level (msl). The current storage capacity is 20.12 Mm³ (20,120,000 m³), with a maximum pool elevation of 51.00 m above msl. The inter-survey annual loss of capacity was about 0.04 Mm³/yr. The reservoir has a drainage area of 4,690 km² (1,820 mi²), with a mean slope of 1% and a mean curvature of 0.14. The long-term annual loss of capacity rate for the period 1974 to 2015 was 0.23 million cubic meters per year (Mm³/yr), and assuming a constant sedimentation rate, the projected useful life of Lago La Plata is about 200 years, ending in 2135.

Storage Capacity, Sedimentation Rate, and Useful Life

The 2015 bathymetric survey included the storage capacity of Lago La Plata at 20.12 Mm³, with a maximum pool elevation of 51.00 m above msl. The reservoir was created by the construction of a dam in 1974 to create a water supply for the city of Toa Alta and its surroundings. Lago La Plata is also part of the Río de La Plata basin, which includes the Río Guadiana and Río Cañas branches. The storage capacity at construction in 1974 was 26.84 Mm³ (26,840,000 m³), with a maximum pool elevation of 52.00 m above mean sea level (msl). The storage capacity at construction in 1974 was 26.84 Mm³ (26,840,000 m³), with a maximum pool elevation of 52.00 m above mean sea level (msl). The long-term annual storage capacity loss rate for the period 1974 to 2015 was 0.23 million cubic meters per year (Mm³/yr), and assuming a constant sedimentation rate, the projected useful life of Lago La Plata is about 200 years, ending in 2135.

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