

HYDRAULIC EFFECTS OF VEGETATION CHANGES ALONG THE SANTA CRUZ RIVER CHANNEL NEAR TUMACACORI, ARIZONA

Lee H. Applegate  
U.S. Geological Survey, FB 44, 301 W. Congress Street, Tucson, Arizona 85701

ABSTRACT

In December 1967, the main channel of the Santa Cruz River between the mouth of Potrero Creek and Tubac was clear of vegetation. Since then, a rising water table, augmented by sewage effluent, has supported a vigorous riparian growth that has dynamically altered the hydraulic characteristics of the channel. A detailed series of aerial photographs, taken at 2-year intervals, records the development of this vegetation through 1980. Changes in boundaries of flood-prone areas along a 1-mile reach near Tumacacori were calculated by applying roughness coefficients and other channel characteristics obtained from field measurements to vegetation distributions shown in the photographs and by performing step-backwater analyses of the data. The resulting ranges of 100-year flood profiles and boundaries in the reach were shown.