

Using an ADCP to Determine Canal Seepage Loss in an Irrigation District

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Abstract. Seepage from earthen irrigation canals represents substantial water loss in irrigation districts. Historically, the determination of canal seepage was accomplished using the inflow-outflow method with propeller and electromagnetic type flow meters. This method was difficult, time consuming, and limited by measurement device accuracy. In recent years, advances in technology have lead to the widespread use of Acoustic Doppler Current Profilers (ADCP) for discharge measurements in streams and rivers. Even though ADCP use has become widespread for stream discharges, studies to determine canal seepage using this new technology are limited. Using an ADCP, extensive field measurements were conducted in the Middle Rio Grande Conservancy District. This paper describes the ADCP measurement protocol used to measure irrigation canal seepage and presents predictive equations for determining canal seepage based on flow rate and canal geometry.

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