Author
Greg Hanson, USDA-ARS Hydraulic Engineering Research Unit
E-mail: greg.hanson@ars.usda.gov

ERODIBILITY CHARACTERISTICS OF EMBANKMENT MATERIALS

Erosion is one of the least reliably defined elements of many hydraulic projects. Earthen embankments (i.e. dams and levees) are an example of hydraulic projects in which erosion and material erodibility have not been reliably defined in the past. Recent as well as past embankment failures have helped clarify that material erodibility is an essential geotechnical parameter for predicting embankment performance during overtopping, internal erosion, and breach failure events. There have been several methods, both field and laboratory, developed for characterizing earthen material erodibility including, large and small flumes, channel tests, submerged jets, rotating cylinders, hole erosion tests, slot tests, etc. Based on laboratory and field testing using the jet erosion test (JET), the erodibility of materials have been observed to vary over several orders of magnitude. Material texture and placement characteristics of soil materials have been observed to impact this variability. This paper describes the JET and the range of erodibility values measured, as well as the implications and importance of these measurements.