OBSERVATION METHOD FOR SCOUR: A NEW TOOL FOR THE BRIDGE ENGINEER

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4:30 pm, 2355 GG Brown Building

By
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Abstract:
On average, one bridge collapses every ten days in the USA and 60% of the time it is due to scour. Bridges are inspected every two years; those with foundations that are unstable for calculated and/or observed scour conditions are termed scour critical bridges. There are approximately 17,000 scour critical bridges in the United States. This lecture proposes a new bridge scour assessment method called the Observation Method for Scour (OMS). The proposed method does not require site specific erosion testing and accounts for time dependent scour in erosion resistant materials. The OMS makes use of charts that extrapolate or interpolate measured scour depths at the bridge to obtain the scour depth corresponding to a specified future flood event. The scour vulnerability depends on the comparison between the predicted and allowable scour depths. This paper also includes a new hydraulic-hydrologic analysis procedure for the determination of flow parameters required in OMS. The 9 case histories used to validate OMS showed good agreement between predicted and measured values. OMS was then applied to 16 bridges, 10 of which were scour critical bridges that had sufficient information for OMS to be carried out. Six out of these 10 bridges were found to be stable according to OMS.
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