

Dr. Johannes (Joe) DeVries, Ph.D., P.E., P.H., D.WRE
David Ford Consulting Engineers

Vegetation Effects on River Hydraulics

ABSTRACT

Vegetation within the flow-carrying portion of a river cross section has a variable effect the hydraulic characteristics of the river. This presentation considers effects on floodway conveyance and velocity response and near bank erosion on typical levees in California. Also discussed is the effect of vegetation-free areas next to levees, erosion around trees, and wind wave and boat wake influences on levees. HEC-RAS is used to evaluate differences in conveyance for four representative Northern California river cross sections. This model also permits analysis of velocity and bed shear distributions in the river cross section.

Dr. Johannes (Joe) DeVries, Ph.D., P.E., P.H., D.WRE
David Ford Consulting Engineers
2015 J Street, Suite 200
Sacramento, CA 95814
Tel: (916) 447-8779
Email: jjdevries@fordconsulting.com
Web: www.ford-consulting.com

Joe DeVries is an internationally recognized expert in hydrology and hydraulic engineering and has over 40 years of experience. He spent nearly two decades at the University of California, Davis as a research engineer and lecturer. He worked as a hydraulic engineer/hydrologist for the California Department of Water Resources and for various consulting engineering firms. He spent 4 years as a hydraulic engineer at the Hydrologic Engineering Center. He taught in the Departments of Civil and Environment Engineering and Land, Air and Water Resources at U.C. Davis. He was Associate Director of the Water Resources Center of the University of California for five years.

He has served as a consultant to the Corps of Engineers, National Weather Service, government agencies in California, Argentina, India, and Taiwan, the United Nations, the World Bank, USAID, and to several engineering firms. For the past five years he has been employed by David Ford Consulting Engineers in Sacramento.

Dr. DeVries has a PhD in Hydraulic Engineering from the University of California, Davis; MS and BS degrees in Civil Engineering from the University of Michigan, Ann Arbor; and a BS in Engineering and Science from Calvin College in Grand Rapids, Michigan.

He is a registered civil engineer in California (1963) and a registered hydrologist with the American Institute of Hydrology (1986). He is a Life Member of the American Society of Civil Engineers (2001) and was inducted as a Diplomat of the American Academy of Water Resources Engineers (October 2005).