

Influence of a Method of Evaluation of the Curvature of Flexible Vegetation Elements on Vertical Distributions of Flow Velocities

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A b s t r a c t

Methods of computing the deflections of flexible vegetation elements under the dynamic pressure of water were presented in the paper. Two methods, based on Euler–Bernoulli beam theory, were discussed, one designed for small deflections and the other, generalized one, also for larger deflections. The choice of the method for computations of deflections was discussed from the perspective of the computation of flow velocities above flexible vegetation. Computational results were compared with laboratory experiments and it was found that the simplified, computationally less expensive method may be used in many practical situations without deterioration of the results.

Key words: flexible vegetation, flow velocity distribution, deflection, open-channel, beam theory.