

Ellis Penning

Dr. Ellis Penning is an expert in the field of Nature Based Solutions and ecohydraulic research. She leads the research programme on Nature Based Solutions and carries out a variety of projects related to this subject. An ecologist by training, Ellis Penning is specifically focussing on the role of vegetation in aquatic systems, both from a flood risk and environmental quality point of view.

Providing new evidence via measured data from both field and flume experiments on the interaction between vegetation and its surrounding environment helps to create a better understanding and provide the basis for better management of these systems. The linking of this experimental data with new model developments for predicting the impact of vegetation for both flood risk management and environmental quality is a key aspect of her work. She is the Deltares project lead for various projects that specifically provide this linkage, such as the Ecoshape Pilot on Vegetated Sandy Foreshores along the Houtribdijk in the large shallow Lake Markermeer and the project on the assessment of the role of woody floodplain vegetation in reducing wave impact on the dikes along parts of the Rhine river. In the Dotterproject she is developing new techniques for spatial mapping of vegetation in flowing waters using new monitoring techniques including full spectrum camera's on Unmanned Aerial Vehicles to provide water managers with more accurate insight in the amount and location of vegetation in their area to improve the management of this vegetation for both flood risk management and ecological values.

Ellis Penning active in various EU projects such as the MARS and Hydralab projects and has extensive experience in international cooperation both in Europe and Asia. At present she is the co-chair of the International Steering Committee of the River Experiment Centre of the Korean Institute of Civil Engineering and Building Technology and leads the Deltares contribution to the joint project on vegetated flows in this unique large outdoor flume facility.