



## The influence of patch configuration on flow velocity and resistance for different macrophyte species

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Macrophytes in Flemish lowland streams are removed to minimize resistance against water flow and thus lower the flooding risks. This reduces also the habitat availability and food availability for micro-organisms, invertebrates and fish. Partial removing of water plants might form a compromise.

Therefore, the effect of different mowing patterns on flow velocity distributions and resistance against flow was studied. The experiments were conducted in a brick walled flume of 25m length and 3m width. This was investigated for different discharge regimes, patch configurations and for four different aquatic vegetation species (*Potamogeton natans*, *Potamogeton pectinatus*, *Ranunculus aquatilis*, *Callitriche platycarpa*).

Within the vegetation patches the velocity declined sharply within the first meters of the vegetation. This decline was more pronounced for *R. aquatilis* and *C. platycarpa* when compared with both *Potamogeton* species. This trend was reflected in the position, where the lowest velocity was observed in the vegetation. For both *Potamogeton* species this was more towards the end of the vegetation patch.

Between the different patterns strong variation in velocities was seen within and around the vegetation. Within the vegetation the velocity was highest in a pattern where only a central channel was vegetation free. When vegetation blocs alternated more diverse velocity distributions were present. This configuration also gave higher flow resistance values than the aligned patterns. The resistance against flow expressed as manning-coefficients showed always highest values at the lowest discharge levels and the highest water level.