

1.2 Topic

Shift in the synchronisation of leaf decay processes in fragmented streams

1.8 Summary

Climate change will increase summer droughts and cause both, premature leaf fall and temporary fragmentation of streams into a series of pools. This match of low flow situations with litter input is likely to alter litter processing. Based on results from Aquashift period 1, we hypothesise change of the invertebrate shredder community and shift among microbial and invertebrate leaf processing. These will change the dynamics of the energy supply of the benthic food web. In pools of summer-dry streams we will expose litter-bags (*Alnus glutinosa* (L.) Gaertn.) to assess mass loss, microbial colonisation (fungi, bacteria) and invertebrate shredding of leaves. Stepwise exclusion of larger invertebrates from litter-bags will assess the significance of suggested shift from dominance of large shredder (*Gammarus*) to small invertebrates (*Chironomidae*). In microcosm experiments we want to investigate the effect of factor combinations found in fragmented pools on microbial and invertebrate leaf processing. A leaf decay simulation model will be build in joint activity with the University Braunschweig to test significance of environmental factors. Linking the population dynamics model of *Gammarus pulex* at Univ. Braunschweig, the dynamics of FPOM production from leaves will be predicted under various climate change scenarios.