

EGU21-3095

<https://doi.org/10.5194/egusphere-egu21-3095>

EGU General Assembly 2021

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Effects of flood timing on vegetated riparian and coastal habitats in a changing climate

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Ecosystem functioning of habitats at land-water interfaces, such as riparian forests and intertidal salt marshes or mangroves is predominantly driven by inundation. Whereas seasonality of ecological processes (i.e. phenology) and of hydrological extremes/events have been relatively well studied independently from each other their interdependence remains largely unknown. Filling this knowledge gap may become especially important in a changing climate as the timing of ecological and abiotic processes is already changing, often independently from each other. As these ecosystems are increasingly praised as Nature-based Solutions, predicting the ecosystem functioning of riparian forests and coastal wetlands under future climate change is crucial.

Here, we will highlight the importance of match and mismatch of ecological and hydrological processes through a range of experiments and field observations in coastal wetlands from the single seedling to the ecosystem level. For riparian floodplains of Europe, we will show how the temporal relationships between flooding and thermal growing season have already changed in past decades, with currently unknown consequences. Finally, we will showcase methodological advances in field monitoring to better study these timing effects and offer conceptual insights to identify tipping points of ecosystem change along land-water interfaces.

This presentation will focus on UPH 'interfaces' and 'variability'.