SAWA

Strategic Alliance for integrated Water management Actions

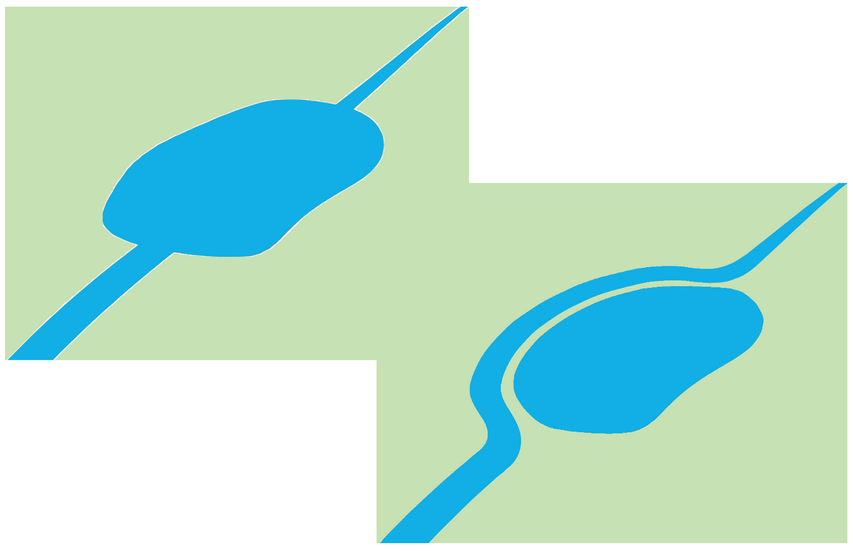
Final Conference

Synergetic Flood Retention for the River Wandse

HafenCity University Hamburg (**4**/4)

Potentials of Optimising Existing Ponded Sections

Focus of the investigation was to find the retention basins that are likely to be effective to cut the flood peaks of extreme events.



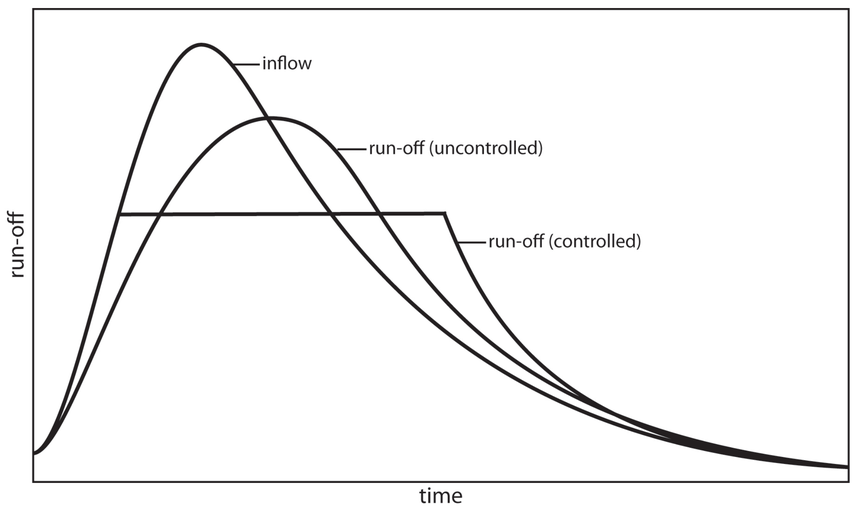
Optimising retention characteristics could go along with the restoration or improvement of aquatic animal passage and vice versa.

Approach

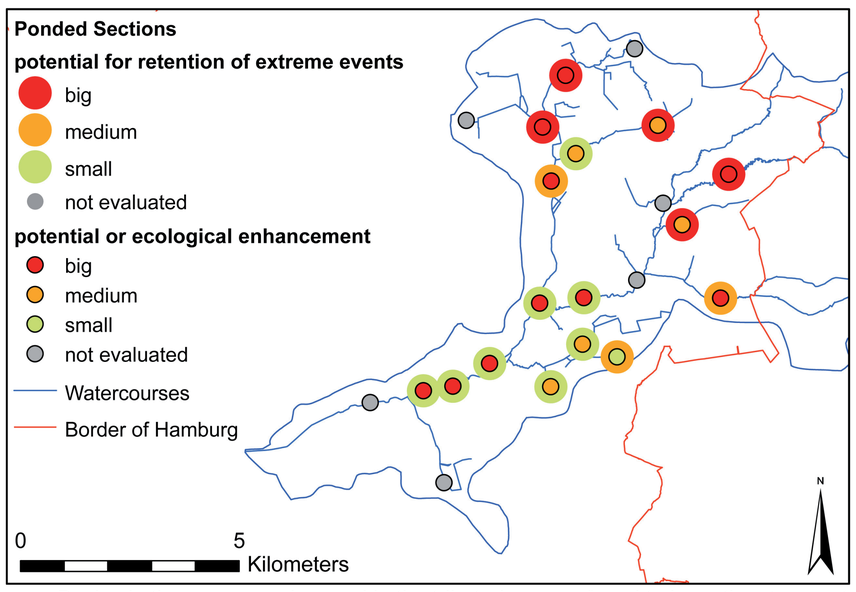
For a large number of different synthetic discharge hydrographs the discharge in the as-is-status and the optimal throttle values were calculated and compared (making use of the existing retention volumes of the basins).

Results

1. Optimisation of existing ponded sections with regards to better retention of extreme floods is more effective for the basins in the upper reaches and the tributaries than for those in the main course.
2. The potential for ecological enhancement is stronger for the basins of the River Wandse main course (due to high importance of aquatic animal passage in the investigation scheme).
3. If the discharge characteristic of a retention basin is changed to allow for optimised retention of extreme flood events, it has to be taken into account that peak run-off values of frequent events must not increase (avoid frequent hydraulic stress).
4. Resulting reduction of flood peak run-off is calculated to reach up to 30 % directly downstream of the basins.
5. Effectiveness in lower reaches has to be investigated using run-off-models to avoid undesired superposition of discharge waves from different subcatchments.
6. Further investigation of optimisation should regard bottlenecks downstream the basins as well.
7. Again, optimisation has to keep in mind the importance of the open spaces around the basins for recreational purposes.



The retention capacity of the basins can be used best, if run-off-peaks of extreme flood events are cut precisely at the amount of discharge that can be managed safely.



Basins in the upper reaches and in the tributaries were found to have the strongest potential for optimisation with regards to the retention of extreme floods.

Partners

HCU HafenCity Universität Hamburg

Landesbetrieb Straßen, Brücken und Gewässer

EUROPEAN UNION
European Regional Development Fund

Investing in the future by working together for a sustainable and competitive region

The Interreg IVB North Sea Region Programme

www.sawa-project.eu