

Response to Reviewers

We would like to thank the reviewers for their constructive and very helpful feedback, which led to a considerable improvement of the paper. In the table below, we refer to the reviewers' comments and how they were addressed.

Reviewer 2	Response
<p>Without the use of flood modeling software or a formal modeling framework, these findings serve primarily as a screening-level assessment that may inform local modeling or monitoring work in the future.</p>	<p>You are correct that, without the use of flood modeling software or a formal modeling framework, our findings primarily constitute a screening-level assessment. Our study aims to provide a qualitative analysis at the landscape scale to inform and support future local modeling and monitoring efforts. We appreciate your recognition of this scope.</p>
<p>I would recommend that the authors include more critique of the indicator system that is used to evaluate potential areas for future NbS (Section 2.2 and Section 3.6). For example, is TWI a suitable metric to assess potential NbS locations? Have other publications used this metric as a proxy to indicate suitability for NbS implementation?</p>	<p>We have added references and a better explanation that these maps are the first step in an analysis for potential NBS implementation. These maps are an illustration of the kind of NbS can be implemented in the tributaries based on their different landscape and land use and flood hazard impacts.</p>
<p>In the title, introduction, and discussion, the authors show that climate change is a motivator for implementing NbS on a larger scale and scope. However, the paper could be improved by adding more quantitative understanding of the potential changing climate to the analyses and/or discussion. For example, are there any studies quantifying how statistical return periods for rainfall or floods in Cologne (line 418) are projected to change, or how flood extents or peak flow along the Rhine could change with time? Is the current infrastructure (whether NbS or grey) likely to withstand these changes? How is population projected to change?</p>	<p>We have added a clearer explanation of flood protection in Cologne, which is currently safeguarded by a combination of grey infrastructure, hybrid solutions, and NbS designed to manage floods with a statistical return period of up to 200 years. Current projections suggest that flood risk along the Rhine may not significantly worsen due to climate change; however, given the vastness of the river system, extreme floods can still occur when factors such as heavy rainfall, snowmelt, and saturated soils coincide.</p>
<p>Most of the maps are well labeled and legends are clear. Figure 5 would be clearer with the addition of boxes clearly outlining the location of the inset maps representing Central Cologne and Southeast Cologne. Figures 6–8 would benefit from an inset map showing the location of the NbS relative to the city of Cologne, particularly for readers unfamiliar with the study area.</p>	<p>Thanks, yes agreed, change have been made.</p>

In Figure 9, the pink boxes are very difficult to see.	
Lines 207-209: Authors should restructure these sentences, e.g., by replacing the period with a comma: "...and others in the Upper Rhine, flood retention/detention from the Upper Rhine to (and including) Cologne is expected to total..."	Thanks, done.
Line 333: Authors should define "HQ".	Done but in the Cologne section Line 228-229
Line 372: 'Plantings' should be capitalized.	Thanks, edit completed.
Lines 377-8: Authors should include a citation for this sentence about Loess soils in Erft basin.	Done
There are a few lines where commas may help with comprehension, including Line 83 and Line 280.	Done.