

Dear editor,

Thank you for your efforts. We have edited the manuscript to correct the minor comments from reviewer 2 (their comments *in italics*, our response in normal font; line numbers and text referring to the tracked changes version). In addition, we would like to note that we added a minor change (the addition of the word “Runoff” in “Large Area Runoff Simulation model” in line 191) that was missing from the last revision and a few sentences to the acknowledgements.

Minor comments (line numbering according to track changes manuscript):

- Please remain consistent with the spelling of south-western

We have decided to use “southwestern” rather than “south-western”. The manuscript should now be consistent.

Line 16:

... southwestern Germany alone...

- Line 129: Only small retention reservoirs (if the authors mean the global context; otherwise, the authors also look at large ones)

We have re-clarified.

Lines 112-113:

... for a variety of DIN 19700 small, medium, and large flood retention reservoirs...

- Line 188: “Thus, we focus only on large, medium, or small reservoirs ...” is duplicative of your statement that you exclude very small reservoirs because then there are no other reservoirs left; and “thus” does not fit to the previous sentence.

We have removed the sentence entirely, as it is indeed redundant, and made a small phrasing adjustment in the previous sentence.

Lines 142-145:

... leaving us with two purpose types: flood protection only, or multipurpose with flood protection, where flood protection-only reservoirs tend to have higher flooding thresholds than multipurpose ones. We also distinguish here...

- Line 210: If you calculate an AF as a medium for the entire simulation period (it would be helpful to specify the years here), please make this clearer.

We have made small adjustments to properly denote this.

Lines 165-169:

We define relative water availability here as the availability factor (AF), or the average number of times per year that a reservoir’s capacity (C, in cubic meters) can be filled via the water that we are able to store based on the entire simulation period (excluding the warm-up; i.e. 1998-2021). The water available for storage is the difference between the mean (calculated over the 24 years of

simulation) yearly inflow (Q_{in}) volume rate and the mean low flow ($Q_{70,mean}$; for definition and calculation see 2.4.1) volume rate, in cubic meters per second...

- Line 211: *rate rates*

This has been deleted; see above.

- Line 222f: *double selected*

We have revised the sentence.

Lines 178-179:

A few other reservoirs... were selected based on stakeholder interest.

- Table 1 (and general): *Explanation of abbreviations LF, LM, MF ... is missing.*

We have added a brief explanation in-text and in the caption for Table 2.

Lines 158-159:

Categories are referred to in this study as a two-letter abbreviation combining their size (where L is large, M is medium, and S is small) and their usage (where F is a flood-only reservoir and M is a multipurpose reservoir).

Lines 162-163 (caption for Table 1):

Each category abbreviation is a combination of its size (large = L, medium = M, and small = S) and its usage (F = flood-only, M = multipurpose).

- Line 515: *The sentence is not well structured.*

We have revised the sentence.

Lines 434-436:

Federbach (Figure 8) is a large multipurpose reservoir with a rather low AF in comparison to other large reservoirs. As it is on the lower end of the high-benefit reservoirs, it demonstrates some limitations that impact a reservoir's benefit.

- Figure 11: *superscript m^3*

We have corrected this typo.

- Figure 12: *I think the axes in the scatter plots are switched. The first plot would otherwise suggest that for the combined operation model the time under droughts is always around 6×10^4 , and for flood operation model ranging from 0 to 6×10^4 .*

The axes are not switched; each point is (Flood Operation Value, Combined Operation Value). We have added text offering interpretation assistance to the captions for figures 11 (as it is similar) and 12.

Lines 502-505:

In the scatter plots (bottom), the x-values for each point denote the score in the flood operation model and the y-values denote the score in the combined operation model. A lower value in the combined operation model (i.e. deviation towards 0 from the 1:1 line) indicates improved performance. Note the differing axes and scales.

Lines 546-549 (identical to the above quote, but listed here for transparency):

In the scatter plots (bottom), the x-values for each point denote the score in the flood operation model and the y-values denote the score in the combined operation model. A lower value in the combined operation model (i.e. deviation towards 0 from the 1:1 line) indicates improved performance. Note the differing axes and scales.