Reply on RC1
Laurie Boithias et al.

Author comment on "Escherichia coli concentration, multiscale monitoring over the decade 2011–2021 in the Mekong River basin, Lao PDR" by Laurie Boithias et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2021-440-AC1, 2022

Please note that line numbers refer to the track-change version of the manuscript, available upon request.

[R1C1] The dataset is a unique collection of multiscale water quality measurements for a tropical watershed. It does not have analogs. By making it available, the authors have made an outstanding contribution to hydrology.

We thank the referee for her/his kind comment.

[R1C2] Some clarifications need to be made. The authors state that they “previously ensured that the values of T, EC, DO%, [DO], pH, ORP, Turb, [TSS], and [E. coli] measured at the sampling point was representative of the variability along the stream transect.” The methodology has to be described or references need to be given.

We checked the variability of the variables’ values along the river cross-sectional profile of station NK20, which is a referenced station of the Lao PDR national hydrological monitoring network. We measured T, EC, DO%, [DO], pH, ORP, Turb, and [E. coli] at a distance of 0.5, 15, 30, 45 and 68 m away from the left bank, and at a depth of 0.5, 1, and 2 m from the water surface. Sampling was done in June in order to have a transient hydrological regime between dry season (low flow) and rainy season (high flow). A total of 10 samples were collected across the section. We found that the values observed at the long-term monitoring sampling point (typically between 5 and 10 m from the left bank) was within the range of variation (min, max) given by the samples across the section.

We made this dataset available within the DataSuds platform (https://dataverse.ird.fr/) with following DOI: https://doi.org/10.23708/RNY0LD.

We changed the sentence at L156-162 to:

"We collected water samples as far as possible from the stream bank, to avoid any influence of the latter. Similarly, we chose sampling stations so as to not be affected by an upstream confluence. Physico-chemistry and suspended sediment concentration can be heterogeneous along a stream cross-section (Santini et al., 2019), but for reasons of logistical capacity of sampling, the measurements could only be made from a single sample at the different stations. However, to ensure that measurements at sampling point
were within the range of variation of the values measured along the stream cross-section, we performed a 10-point survey across the river section at station NK20, which is a referenced station of the Lao PDR national hydrological monitoring network (Ribolzi et al., 2022).”

We updated the references’ list accordingly.

We also added the following sentence at L110-113:

“Bailer-sampled water was typically collected 5-10 m from the stream bank, except for station S4 where water was collected in the middle of the stream, about 0.5 m from the stream bank, and for stations MK_17, MK_3, and MK_5, where we used a boat to collect the water sample in the middle of the stream.”

[R1C3] The authors state that “[DO] probe was calibrated following the air-calibration chamber in air method” The method has to be described or referenced.

We added the reference to the sentence which is now on L148:

“[DO] probe was calibrated following the air-calibration chamber in air method (USGS, 2006).”

We updated the references’ list accordingly.

[R1C4] The duration of the storage and its effect on the water quality has to be described.

The maximal duration of storage before laboratory analysis was 6 hours (L106 and L114). We stored water samples in an opaque icebox until laboratory analysis. The effect of storage is limited: there is no significant variation of \([E. coli]\) within 6 hours (Nakhle et al., 2021). We added the following sentence on L107-108:

“Maximal storage duration of 6 hours ensured that [E. coli] variation was not significant before laboratory analysis (Nakhle et al., 2021a).”

We updated the references’ list accordingly.