We sincerely thank the Editor and referee for their careful reading of our manuscript and for their thoughtful and constructive comments, which have substantially helped us to improve the manuscript. We have considered every comment carefully and revised the manuscript accordingly. Below, we provide our point-by-point responses to each comment.

Editor's Comments

Dear authors, than you for the careful revision of the manuscript in response to the reviewer comments. On recommendation of the reviewers I would like to propose this article for publication. Given that there is no longer a copy-edit step, I would like to ask you to do a careful read of the manuscript to ensure all is consistent and reads well. I have also done so, and would like to suggest some minor editorial changes, as well as resolving a minor comment from the reviewer that I hope you can address.

Response: We sincerely thank the Editor for the constructive comments and suggestions and for the careful handling of our manuscript at HESS.

1. L12: At the most downstream station at Kratie, a key control point for the Tonle Sap inflow, maximum ....
L83: the Tonle Sap flow reversal
L84: has reduced
L94-95: of over 300 operational dams (more than 500 according to some sources, Ang et al., 2024) has resulted in extensive flow regulation
L285: A one-year warm-up period was used for simulations. This sentence seems to say the same as the next, so can be dropped
L445: into the late wet season
L541: the Tonle-Sap reverse flow
L571: the Tonle-Sap reverse flow

Response: We thank the Editor for these helpful suggestions. We have addressed all the comments and carefully reviewed the manuscript to improve its clarity and consistency. We have also revised the wording in lines 585–587 to improve readability.

Referee #2

Thank you for considering and adopting much of my previous feedback and making the appropriate changes. I would suggest to minor modifications to the abstract, so that it better reflects the new parts of your analysis and the attributions you make in the revised manuscript. Specifically:

Response: We thank the reviewer for the positive feedback and constructive suggestions, which have helped us improve the manuscript.

1. Line 1: please consider including sand mining among the driver that have modified the hydrological dynamics of the Mekong – Tonle Sap Lake floodplain system. Suggested change: "Sand mining, dam construction and climate change..."

Response: Thank you for this suggestion. We have added "sand mining" to the opening sentence of the abstract (line 9).

Sand mining, dam construction, and climate change have profoundly altered the hydrological dynamics of the Mekong River-Tonle Sap Lake floodplain system, one of the world's most ecologically productive river-lake complexes

2. Lines 19-20: please consider revising for clarity: "This indicates that post-2010 hydrological alteration reduced the probability of exceeding the discharge threshold for initiating reverse flow, while sand-mining driven…"

Response: Thank you for this suggestion. We have revised the sentence for clarity as follows (lines 27–28):

This indicates that post-2010 hydrological alteration reduced the probability of exceeding the discharge threshold for initiating reverse flow, while sand-mining-driven riverbed lowering substantially amplified this shift by modifying local stage–discharge relationships