We sincerely appreciate the reviewer's comments again. In the previous discussion, we received the comment: "*It is also noted that riverine organic matter (OM) is non-neglectable for PRE hypoxia formation. The authors need to elucidate the long-term change of riverine OM and evaluate its potential influence*". Our initial response may not have fully addressed this important point. We would like to provide the following detailed clarification:

First, our modeling framework comprehensively accounts for the dynamics of organic carbon, nitrogen, and phosphorus. Supported by historical observations of organic matter concentrations, the same model framework (with identical parameter settings) has been applied to quantitatively assess the impact of riverine OM on hypoxia development in the PRE (Wang et al., 2018). Although long-term observational data on riverine OM are limited, we found that, in contrast to the significant increasing trends in nutrients and declining dissolved oxygen (DO) observed in long-term monitoring at the river mouth (Humen Station, Lai et al., 2022), chemical oxygen demand (COD) exhibited no statistically significant trend. This suggests that temporal variations in oxygen-consuming organic inputs may have been minimal over the studied period. Therefore, we maintained constant riverine OM concentrations across the two decades in our simulations. To ensure clarity, we have added the following explanation in the Methods section of the revised manuscript (Line 287-292):

"*Long-term monitoring at river outlets showed no significant temporal trend in COD compared to the marked increases in nutrients and decreases in DO, indicating stable oxygen-consuming OM inputs. We therefore maintained constant OM concentrations between study periods (organic carbon: 2 mg/L; organic nitrogen: 0.2 mg/L; organic phosphorus: 0.03 mg/L), consistent with published historical observations (Wang et al., 2018).*"

Reference:

Wang, B., Hu, J., Li, S., Yu, L., and Huang, J.: Impacts of anthropogenic inputs on hypoxia and oxygen dynamics in the Pearl River estuary, Biogeosciences, 15, 6105-6125, 10.5194/bg-15-6105-2018, 2018.

Lai, Y., Jia, Z., Xie, Z., Li, S., and Hu, J.: Water quality changes and shift in mechanisms controlling hypoxia in response to pollutant load reductions: A case study for Shiziyang Bay, Southern China, Science of The Total Environment, 842, 156774, https://doi.org/10.1016/j.scitotenv.2022.156774, 2022.