

- 1. The author needs to compare previous related studies. For instance, I have listed some studies, including those on the impact of water extraction on salinity intrusion. Could the author elaborate on the differences and innovations compared to these earlier studies?**

Webber, M., Li, M. T., Chen, J., Finlayson, B., Chen, D., Chen, Z. Y., ... & Barnett, J. (2015). Impact of the Three Gorges Dam, the South–North Water Transfer Project and water abstractions on the duration and intensity of salt intrusions in the Yangtze River estuary. *Hydrology and Earth System Sciences*, 19(11), 4411-4425.

Huang, H.; Wang, Y.; Wang, S.; Lan, Y.; Huang, X. Saltwater Intrusion in the Changjiang River Estuary in Response to the East Route of the South-to-North Water Transfer Project in the New Period after 2003. *Sustainability* 2024, 16, 683. <https://doi.org/10.3390/su16020683>

Jung, C.; Lee, G.; Park, J. Cause Analysis of Salinity Intrusion by Environmental Changes Considering Water Intake and Sand Mining on Seomjin River Estuary Using Model for Maintaining Corbicula Habitats. *Water* 2024, 16,1035. <https://doi.org/10.3390/w16071035>

Alcérreca-Huerta, J. C., Callejas-Jiménez, M. E., Carrillo, L., & Castillo, M. M. (2019). Dam implications on salt-water intrusion and land use within a tropical estuarine environment of the Gulf of Mexico. *Science of The Total Environment*, 652, 1102-1112.

- 2. Why can the Guadalquivir River Estuary (GRE) be simplified into a one-dimensional model for study? What is the structure of the vertical circulation, and how does it affect salinity intrusion?**

- 3. The tuning of the  $\delta$  parameter was adjusted to match the observational data. Could the model be influenced by other factors, such as the bottom friction coefficient or the horizontal diffusion coefficient  $D$ ? How should the  $\delta$  value be determined when studying other estuaries? In other words, what insights does the  $\delta$  value used in this study offer for applications to other estuaries?**

- 4. What is the basis for determining  $D = 0.5 \text{ m}^2/\text{s}$ ? Would using other parameterization schemes for  $D$  across the entire area significantly affect the salinity intrusion?**

- 5. How can the impact of human pressure on salinity intrusion be quantitatively**

**assessed based on the 1D diffusion equation in this study? Is it through its effect on advective transport or horizontal diffusive transport, thereby influencing salinity transport? Which of these two processes contributes more?**

- 6. There are three tributary estuaries in this study, but they don't seem to be marked on the figures. Additionally, how was the runoff distributed among these three estuaries? In the experiments with increased or decreased runoff, was the flow rate adjusted simultaneously for all three tributary estuaries?**
  
- 7. How is the fact that water withdrawal does not occur throughout the entire estuary, but at specific locations, taken into account? This localized withdrawal will also lead to a reduction in the overall runoff of the estuary. Would this have any impact on the study's results?**
  
- 8. How is the water withdrawal process represented in the governing equations? In other words, how is the dynamic process of water withdrawal parameterized in the governing equations?**
  
- 9. In the introduction, could you add some related studies on the impact of human activities on salinity transport in other estuaries?**