

This work showed that the eddy viscosity component is still dominant even when stratification is present. Particularly, the turbulent mean component dominates the overall eddy viscosity component under stratified conditions. In contrast, under unstratified conditions, the contribution of the tidal straining component to the total eddy viscosity component outweighs that of other components. The authors presented a lot of figures in their work to show the results and findings (i.e., 17 figures in total). However, the authors are encouraged to be more selective with the figures. The authors did a good job in presenting interesting experiments and results to the scientific community. However, as there are a few things requiring improvement in the manuscript at this point, it is suggested that the article should go through **minor revisions** and **English editing** before accepting and publishing. Specific review comments are provided to the authors as follows.

- 1) Lines 059 – 059: It should be “gravitational circulation” instead of “gravity circulation”.
- 2) Lines 061 – 062: It is understood that the authors already provided brief comparison in lines 086 – 090. However, the authors are encouraged to provide a brief introduction and definition of ERV and LRV when they first appeared in the paper. For example, one of the authors’ previous works published on the *Frontiers in Marine Science* (Deng et al., 2022; <https://doi.org/10.3389/fmars.2022.901490>) mentioned that “Eulerian residual velocity (ERV) is the average of the velocities during one or several tidal periods at a fixed location (Abbott, 1960). Lagrangian residual velocity (LRV) is defined as the net displacement of a labeled water parcel over one or several tidal periods (Zimmerman, 1979).”
- 3) Lines 077 – 085: While several relevant works have been reviewed and included, the authors are encouraged to include some most-recent studies. For example, Hewageegana et al. (2023; <https://doi.org/10.3390/jmse11071333>) used a numerical model (ROMS) to analyze the seasonal variation of residence time at Caloosahatchee River Estuary, Florida during a period of five years. Hewageegana et al. (2023) discovered and showed a relationship between residence time and wind direction and magnitude.
- 4) Lines 177 – 178: It is recommended to write it as either “tidal periodic oscillation currents” or “periodic oscillation tidal currents”. In other words, use one “tidal” instead of two.
- 5) Lines 195 – 206: The authors indicated the model setup in detail in this section. However, the authors are encouraged to indicate more about how the resolution in space and time were determined. For example, did the model setup follow some previous studies? (If yes, please include the reference.) Or did the authors perform a sensitivity analysis on computational grid resolution for this work?
- 6) Lines 210 – 215: The authors are encouraged to indicate ***both references and links***. The authors are also encouraged to indicate the time interval (i.e., resolution in time) of the CCMP data. Additionally, the authors are encouraged to indicate the full name of “CCMP” as it appeared in the document for the first time.
- 7) Lines 223 – 223: The authors are encouraged to indicate the date, e.g., 1 June 2017.
- 8) Lines 242 – 242: It should be “... including three cross sections (Sections B – **D**)”.
- 9) Lines 245 – 249: According to the description in lines 241 – 244, should these along-estuary distributions of salinity be extracted from Section A instead of Section C? It may be clearer to move the texts in the subplots’ titles “CTD” and “MODEL” to the space after “(b)” and “(c)” in the plots. In other words, the authors are encouraged to revise “(b)” as

“(b) CTD” and revise “(c)” as “(c) MODEL” on the plots. Additionally, although the authors have indicated that the colormap represents salinity in the figure caption, it may be clearer to indicate that beside the color bar as well.

- 10) Lines 250 – 250: It may be clearer to revise the “model-derived elevation” as “model-derived sea surface elevation”.
- 11) Lines 267 – 267: It should be “good performance” instead of “well performance”.
- 12) Lines 268 – 268: It may be clearer to represent the y-label as “Sea surface elevation” instead of “Sea level”, which is also consistent with the description in line 252.
- 13) Lines 275 – 275: It should be rewritten as “where *abs* is the absolute value function ...”.
- 14) Lines 294 – 299: While panels (a) to (e) in Figure 4 have been introduced in the figure caption, panels (f) to (j) are NOT introduced. Additionally, although the authors have indicated that the colormap represented  $u_L$  in the figure caption, it may be clearer to indicate that beside the color bar as well. This comment also applies to Figures 5 – 17.
- 15) Lines 306 – 307: ***This comment is optional.*** The authors are encouraged to think about how to better present the data shown in Table 2 to the readers. Would it be more appropriate and clearer if these data/numbers are presented using bar charts or something similar?
- 16) Lines 402 – 402: The authors are encouraged to use numbers to describe/rephrase “significant changes” or “there is no significant change” throughout the document e.g., lines 454, 489, 605, 646, 668, and 748).
- 17) Lines 717 – 763: The authors are encouraged to link the finding of the resent work to some other recent studies mentioned in the INTRODUCTION. Besides, the authors are encouraged to indicate how much the tidal straining component takes precedence over other factors in line 761 using numbers or percentages.

The reviewer is willing to review the revised version if needed.