

The manuscript has been improved, and I am satisfied with the way how the authors address the reviewers' comments. I only have these following questions/comments:

1. Sensitivity experiments: when comparing Case 2 and Case 3, actually it is unfair to compare their impacts; Case 2 increases surface heat gain locally by 10% from May to July, which lasts for 3-months; while Case 3 increases surface heat gain in Hayasui Strait by the same percent, but only for one month - July. And the two cases' impacts are measured and compared for July. It is reasonable to think, the less temperature change in July for Case 3 than that for Case 2 is because the heat-flux-increase's lasting time period is shorter. To avoid this problem, Case 3 or a new case should be modified or added: increase surface heat gain in Hayasui Strait by 10% from May to July.
2. Lines 470-471. "This is an inverse pathway to the heat transport and is expected to be large in some BCWMs. " What does this sentence mean? Why nutrient transport is an inverse pathway to heat transport?

Minor:

1. Line 58: "... a schematic diagram in Fig. 5" -> Fig. 6 ?
2. Lines 90-91: "However, water temperature at Hayasui Strait is almost **vertically** homogeneous throughout a year"
3. Line 105: "The red line of the 18 °C isotherm in (a)" -> (g)
4. Line 106: "The red and black bars in (b)" -> (m)
5. Line 129: analysis -> analyze
6. Lines 173 and 299: "Fig. 2c" -> Fig. 2g
7. Line 178: "Supplementary Table 1" -> 2
8. Supplemental Figure 4 caption: July -> August
9. Figure 5 caption: significant difference level? -> significant confidence level; as well as in Line 249
10. Line 233: Fig. 5a -> Fig. 5e; Figs. 5b-d -> Figs. 5f-h
11. Line 236: Fig. 5d -> Fig. 5h