

## CC1: Rebecca Woodgate

Very interested to see this. A few quick questions:

1) You report that cold WW in Herald Canyon is fresher in 2014 than 2008 and discuss (lines ~ 400) that that may be due to changes in advection and brine release. However, I wonder how much of that freshening can be related to the freshening in the Bering Strait, Woodgate and Peralfa-Ferriz, 2021. See, e.g., Figures 5 and 6a of Woodgate, 2018, and data available at [psc.apl.washington.edu/BeringStrait.html](http://psc.apl.washington.edu/BeringStrait.html) (monthly mean salinities for example) where you can clearly see 2014 is mostly fresher than 2008. Do you see this freshening in the Bering Strait in your model? And can you quantify how that affects the salinity in Herald Canyon?

Thank you for bringing this article to our attention. Your Bering Strait results show that there is a freshening of about 0.3 between 2008 and 2014 from upstream. This is about half of the WW freshening we observe in Herald Canyon. We have updated the paragraph to add this. However, we have retained our line of argument that changes in circulation and brine release the previous winter on the East Siberian shelf likely also contribute. We have edited the relevant figure to show that 2008 follows the wind pattern identified by Pickart et al. (2010) with strong northeasterlies in late autumn and early winter and a weakening in spring. The 2013/14 winds are very weak both in winter and spring and will not have helped to constrain waters to the shelf west of Herald Canyon.

2) Line 470 .. "a substantial fraction of PW ... continues to the ESS via Long Strait". It would be helpful to be specific as to how much.

We can specify how much in the revision.

3) Related, it would also be interesting to quantify in the model how much of the Chukchi outflow enters the Arctic via Herald Canyon directly (rather than through Barrow Canyon).

We can also quantify how much of the Chukchi outflow enters Herald Canyon directly in the revision.