

Interactive comment on “Water mass characteristics and their temporal changes in a biological hotspot in the southern Chukchi Sea” by S. Nishino et al.

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This is by and large a very well written manuscript that provides observational coverage of the biological hotspot in the southern Chukchi Sea. Shipboard and mooring data are presented, and the overwinter mooring data set is particularly valuable, as it represents the first presentation of annual observations throughout the year. The shipboard data collected is also valuable because of the time of year of sampling, late in the season, and documents fall bloom events and the build up of ammonium in bottom waters.

The manuscript is well written, but I provide a few typographical suggestions on the attached copy. The one area that I was concerned about, although I am not sure

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it changes the conclusions greatly, involves the end-members used for estimating sea ice melt waters from potential alkalinity. The authors use the approach and end-member of Yamamoto-Kawai et al. 2009, specifically that meteoric water contributed to this system has a potential alkalinity of $793 \mu\text{mol kg}^{-1}$. However that is based upon collections made in the Canada Basin much further north, and under the apparent larger influence of Eurasian rivers. Since the southern Chukchi Sea hot spot location is much further south and under the direct influence of Bering Strait waters flowing northward, I think this end-member value may be too low, in not accounting for higher North American river water content present at the study site. On the other hand, this means of estimating sea ice meltwater may not be that sensitive to the end-member chosen, but since this is one of the more speculative aspects of the study, I would suggest some discussion of the sensitivity of this estimate be included. My own oxygen isotope data from 2012 (revised manuscript in review) indicates that melted sea ice was a very dominant feature of surface Chukchi sea waters that summer, so the conclusions reached here regarding the 2012 melted sea ice contributions appear consistent with that.

Please also note the supplement to this comment:

<http://www.biogeosciences-discuss.net/12/C7447/2015/bgd-12-C7447-2015-supplement.pdf>

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