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Ocean Science Discussions

Interactive comment on "Simulating the spread of disinfection by-products and anthropogenic bromoform emissions from ballast water discharge in Southeast Asia" *by* Josefine Maas et al.

Anonymous Referee #2

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The paper addresses an additional source of bromine to the atmosphere from chlorination of ballast water. It is a first attempt to model the potential additional risk of ballast water treatment. The paper is well written and I recommend that the paper is published after addressing some issues. Up to date there are a number of ballast water treatments depending on chemical treatment (chlorination, chlorine dioxide, electrochemical treatment and ozonation) which are also mentioned by the authors. To extend the discussions regarding the magnitude of the emissions of brominated compounds from ballast water, the authors should consider to add discussions regarding

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the usage of these different techniques, especially the chemistry of sea water ozonation. The composition of organic matter is also addressed by the authors. On a global scale – what are the authors take on the differences in bromoform production due to differences in dissolved organic matter? Also, the authors mention that environmental factors such as temperature and salinity might effect the formation of bromoform. It would be beneficial if the authors could expand this section to give a more complete picture of the magnitude of emissions on a global scale.

The global contribution of bromoform from ballast water is given to be 13 Mmol Br / year. How was this number derived? The total amount of ballast water on a global scale has for instance been estimated to be 7 billion tonnes on an annual basis. How would such an estimate influence the given annual flux?

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