

Dear Editor, dear Anne-Marie Tréguier,

Thank you very much for accepting our manuscript entitled *“Radionuclides as Tracers of Arctic Outflows: Pathways, Water Mass Mixing, and Freshwater Input to Davis Strait and the Labrador Sea.”* We are grateful for the positive evaluation and for the constructive feedback provided.

We have carefully addressed all minor comments from Reviewer #1 and appreciate their thorough reading of the manuscript and attention to detail. We believe that the suggested revisions have helped to further improve the clarity and readability of the paper.

Before addressing the specific comments, we would like to note that the previously uploaded version of Figure 5 was incorrect. As a result, some of the reviewer’s comments referred to that version of the figure. We have now corrected this issue and uploaded the appropriate version of Figure 5, and we have revised the relevant sections of the manuscript accordingly.

Please find below our responses to the reviewer’s line-by-line comments:

Line 24: Revised to “...cold and fresh southward-flowing waters from Baffin Bay...” to better reflect transit through Baffin Bay.

Lines 29–30: The sentence has been revised and incorporated into the previous one to improve flow and clarity.

Line 33: The phrase “Baffin Bay ocean exchanges” has been rephrased for clarity.

Lines 86–89: The statement has been refined to refer more specifically to regional changes within the Arctic Ocean (e.g., Eurasian Basin, Amerasian Basin).

Line 144: Revised to “...through the CAA...”.

Lines 265–266: We have added a sentence in lines 254–255 to clarify that S_A and CT stand for Absolute Salinity and Conservative Temperature, respectively.

Line 313: Corrected to “In the tracer space, WGSW forms...”.

Lines 393–395: Clarified to reflect that the mixing line in Figure 5 connects NS-South and Pacific Water; the text has been updated accordingly.

Lines 398–399: Revised to “Pacific and/or tracer-free water...” here and throughout the manuscript to reflect the limitations in distinguishing between these sources using 129I and 236U.

Line 429: We respectfully prefer to retain both the full name and acronym (WGSW and WGIW) at the beginning of each subsection for clarity, given the number of acronyms used.

Line 450: Corrected typo (“thickness”).

Line 515: Units have been changed to at/kg for consistency.

Line 524: Corrected description of the mixing line in Figure 6B to reflect that it connects NS-South and tracer-free water.

Line 569: As above, we prefer to retain both full names and acronyms at the beginning of subsections for clarity.

Line 584: Corrected to “water mass”.

Line 595: Revised to “...surfaces (Zou et al., 2020)”.

We hope that these revisions satisfactorily address all remaining comments. We thank the reviewer again for their helpful suggestions and the editor for handling our manuscript.

Kind regards,



Dr. Lisa Leist and Prof. Dr. Núria Casacuberta

(on behalf of all co-authors)