

Dear author,

By studying comments from reviewers and your responses to them, I have judged that your manuscript will be acceptable after minor revision. Although, as was pointed out by both reviewers, the idea “primary productivity is influenced by freshwater content” is not new, the manuscript provides valuable information on regional and interannual variability in primary productivity in the Chukchi Sea. Based on this view, the title “The potential effects of freshwater content on the primary production in the Chukchi Sea” may be too strong and I would recommend to change it to “Primary production in the Chukchi Sea with potential effects of freshwater content”.

Your response to some of reviewer #3’s comments are not adequate and need to be re-considered before the final acceptance. Please see below.

Reviewer #3’s comment: “this is the Russian Exclusive Economic Zone (20 miles), not territorial waters, which extend only 12 miles from shore”

Your reply to this comment missed the point. Territorial waters is defined as a belt of coastal waters extending at most 12 miles from the coastline. Is your station really within 12 miles from the Russian coastline? If not, please change “including the territorial waters of the Russian Federation” (line 82) to “including coastal waters of...” or “including the Exclusive Economic Zone of ...”

Reviewer #3’s comment: “These are inventories of nutrients, not concentrations”

I agree with the reviewer #3. Once concentrations of nutrient were integrated, the obtained value is inventory or amount, not concentration any more. Please change “concentration” to “inventory” for values with the unit “mol m⁻²”.

Reviewer #3’s comment: “I do not follow what mechanism is being invoked for replenishment of nutrients from deep waters (e.g., Canada Basin).”

You have added (e.g., Canada Basin) to the text, but I suppose that what you want to mean here is a replenishment of nutrients below the surface layer, not from “deep waters”. I would suggest to modify the sentence to clarify the meaning to read “These inputs of freshwater presumably influenced the nutrient reservoir and its replenishment from deeper layer by altering stratification of the water column.”

Reviewer #3's comment: "comparisons to other productivity measurements are incomplete without careful consideration of the influence of seasonality and location of sampling—high productivity in the Chukchi Sea is rather localized..."

Difference in sampling dates is discussed in the revised manuscript and clearly presented in Figure 9. However, location of previous studies other than RUSALCA cruises are not indicated. As productivity is largely different between regions, location information is essential to judge Figure 9. Please add a description of locations of previous studies in the text and/or Figure 9.

Figure 9. What are open circle and open square with a cross in Figure 9 (a) and (b)? Please mention in the caption.

Figure 10, Hill et al. (2005)-> Hill and Cota (2005)?
