

## Reply to the reviewers' comments

Para et al.

### Reply to PK Kowalcuk comments

**Comment # 1:** “*Your protein component C3 is rather authochthonous than allochthonous. C3 does not correlate with salinity as shown on Fig10. Please correct the explanation in Table 3*”.

**Reply:** We agree, this is now in Table 3 of the revised MS.

**Comment # 2:** “*Section 3.2.2 Authors have written that: "The Ex/Em maxima of component 1 (C1) are close to the marine humic-like (M peak) proposed by Coble (1996) and has been reported to be a ubiquitous component derived from the microbial degradation of phytoplankton by-products (Nagata, 2000; Stedmon and Markager, 2005; Zhang et al., 2009) and from specific Arctic terrestrial sources at low salinity (Walker et al., 2009). "The terrestrial source of component similar to your component C1 was found not only in the Arctic but also is variety of places: in coastal and estuarine water in Japan (Yamashita et al., 2008), at the coast of the south-eastern USA (Kowalcuk et al., 2009) in Liverpool Bay (Yamashita et al., 2011) Hudson Bay (Guéguen et al., 2011).*

**Reply:** We agree, this information is now given line (page 16, lines 387-390) of the revised MS

“*Indeed, component C1 has been reported ..... in Liverpool Bay (Yamashita et al., 2011), and in Hudson Bay (Guéguen et al., 2011).*”

The following references were added in the reference list in the revised MS:

*Yamashita, Y., Jaffé, R., Maie, N., and Tanoue, E. Limnol. Oceanogr., 53, 1900–1908, 2008.*

*Yamashita, Y., Panton, A., Mahaffey, C., and Jaffé, R. Ocean Dyn., 61, , DOI 10.1007/s10236-010-0365-4, 2011*

*Kowalcuk, P., Cooper, W.J., Durako, M.J., Young, H., Kahn, A.E. Mar. Chem., 113, 182–196, 2009.*

*Guéguen, C., Granskog, M.A., McCullough G., and Barber D. G., J. Mar. Syst., 423-433, 2011.*

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