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Interactive comment on "Characterizing the origin of excess dissolved organic carbon in coastal seawater using stable carbon isotope and light absorption characteristics" *by* Heejun Han et al.

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Reviewer # 1

General comments: This is, nothing really novel, but a simple and clear study. The authors used combined concentration, stable carbon isotope and fluorescence measurements to characterize the sources of dissolved organic carbon (DOC) in a small coastal bay, the Sihwa Lake in South Korea. The manuscript is well written and the results were clearly described and discussed. I support its publication and wish the following suggestions can be considered.

Printer-friendly version

Discussion paper

-> Thank you for your valuable comment. All your comments are carefully taken into account in the revised version.

Specific comments: 1. The studied Sihwa Lake is a very shallow (<8 m) coastal bay and it appears that the freshwater influence from the few streams to the bay is insignificant from the salinity and DOC-δ13C distributions, only in the land-ocean interface. Therefore, the sediment resuspension could be an important factor influence the DOC concentrations in the bay. The high DOC (or excess DOC) observed in the bottom water in the nearshore stations (only 2–3 meters deep) in 2017 could be influenced by the sediment resuspension or disturbance of the surface sediment, resulting in high sediment porewater DOC fluxed into the bottom water. Usually, the concentrations of porewater DOC in the coastal sediments are much higher than that of the water column. I think the authors mentioned this but more discussion will be good.

-> We agree that the excess DOC could be from the sediment re-suspension or porewater exchange . We add more in-depth discussion on this based on DOC-δ13C values (average: –22.1‰ in these samples and references in the revised version.

2. Line 61–62: “The total volume of the Sihwa Lake water is $\sim$3.3$\times$108 m3 y-1 and the discharge rate is approximately 3.4$\times$108 m3 y-1 (Lee et al., 2014)”. Please check on the unit of the total volume.

-> Yes, corrected. Thank you!

3. For Figure 4 and 5, if these lines are linear regression of the date, the regression parameter should be given.

-> We add the statistical information (r2 and p values) in the revised version.

4. In all figure captions, Lake should be added after Sihwa.

-> Yes, add “lake” as suggested in the revised version. [END]

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