We are grateful for the additional constructive suggestions and comments. In the revised version of our manuscript, we tried to address the suggestions as follows:

1. There are no molecular insights into the following key processes: the microbial transformation and chemical compositions of the used algal exudate, the used inoculated seawater that had been stored for 5 months, and the produced "non-labile DOC".

We agree that the discussion on chemical transformation of the non-labile DOC was slightly underrepresented and added following additional statements:

L592:
The major chemical differences between $[Glc]_{70}$ and $[Glc]_{695}$ were: (i) a lower average relative contribution of hydrogen, (ii) and a higher contribution of nitrogen and sulfur per molecule.
L600:
In contrast to the chemical changes observed in the [Glc] treatments, the [exud] treatments did not show an increase of nitrogen and sulfur between day 70 and day 695. This might be explained by a more efficient incorporation of heteroatoms into the microbial biomass and would be consistent with higher BGE_{estim} values for the exudate treatments. The DOM formed in the $[exud]_{695}$ should therefore more appropriately be termed "semi-labile".

In addition, we already showed in our previous version that the microbial transformation of [exud] resulted in molecular changes (Tables 3 & 4, Fig. 6): The contribution of molecular formulas containing nitrogen increased in the first phase of the incubation. Amino acid carbon yield increased during the log phase towards 41 days of incubation (emphasized in the revised version in L608). I_{deg} changed from a fresher state in the [exud] control to a more degraded state. It was not our objective, however, to study the microbial transformation of the seawater used as the incolum. Its average chemical composition is displayed in Table 4 (controls) and the molecular formula composition was used as the basis for all comparisons in Figure 6a.

2. The observation "Nitrate, nitrite and phosphate remained almost constant in all treatments" needed to be interpreted.

We added following statements:

L489:
Apart from the changes we observed for the ammonium concentration in the [Glc] and [^{13}Glc] treatments, we assume that changes in nutrient concentrations were below detection. The DOC net consumption of 9 µmol DOC L^{-1} in the [exud] treatments in the exponential growth phase (Table 3) would require less than ~2 µmol L^{-1} inorganic nitrogen and far less phosphate-P.

L520:
"[…], indicating that ammonium was the preferred source of nitrogen for microbial growth"

3. Compared to glucose, algal exude may be more likely to be structural materials for bacteria. (The analyses based on the saturated and reduced states also proved that). Glucose is the main or core

material in TCA cycle, it could be either energy source or sub-material for synthesis of many other compounds that are essential for bacterial growth and metabolism. In addition, extra nutrient was introduced in the Exude incubation, the lower C/N ratio might influence the microbial activities including carbon uptake. The steady nutrient concentration (especially ammonium concentration) in the Exude incubation gave some clues for that.

As nutrients were not limiting at any point of the experiment we do not think that the additional nutrients in the [exud] treatments are critical. However, it might be possible that it affected community composition. We think that the invariant nutrient concentrations in the [exud] treatments are rather a consequence of the low uptake rates. A net carbon uptake of <10 µM is probably too low to allow for the determination of corresponding nitrogen uptake. We tried to clarify this in the manuscript by adding an additional statement (see above).

4. The above are all related to the observation "BGE was comparable in the treatments which contained glucose (0.1) and substantially higher in the [exud] treatments (0.6)". Does this also mean labile DOC stimulates microbial respiration more strongly? Or that the added labile DOM lacks proper N content?

Based on the FT-ICR-MS analyses the N content of the initial ^{sc}[exud] substrate was very low and almost comparable to ^{sc}[Glc]. Therefore, we assume that the nitrogen availability is not the most important aspect for different degradability. Although we think it might appear slightly speculative, we added a statement on the potential relation of BGE and the molecular N and S results (see above).

In addition to the reviewers suggestions we added following paragraph:

L638
It should also be noted that the evaluation of sample similarity based on molecular formulas (and their respective peak magnitudes) is generally a function of molecular complexity. If the number of molecular formulas increases in sample sets, the similarity between samples must also increase, particularly if the compositional space (i.e. the possible combinations of elements in a molecule) converges the maximum of all chemically feasible combinations (Hertkorn et al. 2008).