Below we describe new revisions (R2) we made to the revised manuscript based on new feedback from reviewer 2. Below you will find a point-by-point response to the feedback in orange. Line numbers refer to the revised document viewed in 'simple markup' mode.

RC 2

Ensure consistency in the abbreviations for the different Fe-P extractions. It is still difficult to follow; for example, line 256 uses the term HR-Fe (I assume Highly Reactive?), but HR is not included in Table 2.

We added explicit description of HR-Fe and PR-Fe to the Table 2 caption; HR-Fe and PR-Fe are derived values, not directly measured.

Line 146: "The sensor has an uncertainty of approximately ±5 µmol O2 L^{-1} as indicated by the supplier," but the lowest O2 concentration is 3 µmol O2 L^{-1}. Please clarify.

The sensor has an uncertainty of ~5 uM, but the resolution is higher so concentrations down to 0.0 uM can be recorded, where concentrations close to 0 should be treated with caution with respect to whether they represent "true" anoxic or not. This was already mentioned in the revised manuscript so we did not implement further changes.

Table 2: reference "C" is not listed below the table.

Removed orphan superscripts from Table 2

Fig. 2: "Sediment profiles of key solid-phase chemical parameters." Probably the total fraction. Please clarify.

Added "(total concentrations)"

"Note that organic P was not determined for station 10 because of analytical issues; however, mass balance (i.e., total P from sediment digest compared to cumulative P from SEDEX extraction steps) indicated that this was a minor P pool." Please clarify the SEDEX extraction.

Added the SEDEX acronym to the first introduction of the P extraction protocol by Ruttenberg

Line 449: "Assuming a Fe/P stoichiometry of 5–10 for highly reactive Fe(III) (oxyhydr)oxides with sorbed or coprecipitated P." Please consider the Fe/P values from acrobate extractions performed in the work of Sundby and Anschutz in St. Lawrence sediments (rich in iron), with ratios reaching 14. This does not change the authors' conclusions

Extended the ratio (10-15) and included the papers

Discussion on SOB: could these instead be cable bacteria? The redox conditions are ideal for this type of bacteria

Considering the visual appearance of the filaments and the well-established (periodic) presence of SOB, we will maintain the current interpretation. We cannot discount the possibility that cable bacteria may exist in the research area as well.

Section 4.3 is still rather long and could be more concise. Its scope is narrower than the other sections

We have made another effort to remove any superfluous information from section 4.3.