General comments:

The authors address the effects of increasing CO_2 equilibrated ocean alkalinity on marine microbes in an oligotrophic system. This study is timely since there has been increasing insight that negative emissions will be required to avoid dramatic climate change. Therefore, studying the potential effects of these carbon removal strategies is essential to informed decisions about their efficacy and practicality.

The manuscript is well design and, overall, well written and provides an important step to the knowledge of the effects of ocean alkalinity enhancement. Therefore, I recommend this paper for publication in *Biogeosciences*, after minor revisions.

Specific comments:

Title
The title of the manuscript puts emphasis on testing an oligotrophic system, but not much relevance was given in the introduction and discussion sections to the importance and particularities of these oligotrophic regions. Moreover, information concerning the nutrient concentrations during the experiment is not evident, since the Supplementary Figures are not cited in the manuscript (please correct this).

P. 1, lines 5- Correct formatting of the coma after Stephen D. Archer.

Introduction
P. 2, line 56: The citation "National Academies of Sciences, Engineering and Medicine, (2021) is not in the reference list.

P. 2, line 72: The citation "Renforth & Henderson (2017)" is not in the reference list.

P.3, line 97: What is meant by "first step"? A few other studies have considered the effects of ocean alkalinity enhancement. Please improve phrasing for clarity.

Material and Methods
P. 4, line 122: Please add n and Standard Deviation or Standard Error associated with the presented averages.

P. 4, lines 123 to 125: To calculate the carbonate system it is also necessary to know phosphate and silicate concentrations, please add the values used and refer to other potential publication or refer to Figure S5 in Supplementary Material.

P. 4, line 125: The citation "Uppström (1974)" is not in the reference list.

P. 4, line 126: The salinity used to calculate the carbonate system before and after the manipulation of total alkalinity was the same? Please add the difference caused by the manipulation and justify for not using the specific salinities.

P. 4, line 129: The word "(italics)" is unnecessary.

P. 4, line 131: Specify the pH scale and format "p" of "pCO2" to italic (throughout the manuscript).

P. 4, line 134: The reference to "pseudo random order" needs further clarification, since this term is used when an algorithm is applied to produce sequences of random numbers.

P. 4, lines 141 to 143: Considering the novelty of the study, it is important to provide more detailed information on the accuracy of the alkalinity manipulation, such as, effects related to increasing TA levels, the time between sampling and measurements, and potential precipitation effects.

P. 5, line 152: The citation "Bryan et al. (1976)" is not in the reference list.

P. 5, line 168: The collection of an integrated 2.5 m sample provides information of the communities that occur from 0 to 2.5 m depth. If the referred light intensity range was measured below the screen, the communities were exposed to very high light intensities. Hence, it would be useful to state the time frame to which the organisms were exposed to this high light intensity ($\sim$2300 µmol m^{-2} s^{-1}). Furthermore, elaborate on the choice of the screen.

P. 6, line 187: The citation "Cermeño et al. (2012)" is not in the reference list.

P. 6, lines 192 to 193: This sentence should appear before, perhaps in line 189.

P. 7, line 238: It would be useful to have information about the groups that were defined with flow cytometry, in the Material and Methods section. This will facilitate the discussion.

P. 7, line 250: The citation "Wickham (2016)" is not in the reference list.

Results
P. 7, line 255: The graphs might be misleading in relation to the end of the so-called stable period, is it day 20 or 21? Moreover, with the exception of the highest treatment, where precipitation occurred, both TA and DIC were stable until the end of the experiment according to Figure 1. Please elaborate.

P. 8, line 272: Please adjust the graphs to the same dimensions to facilitate comparison and add a break symbol to call attention that the axis is not starting with 0. The legend of the X axis of this Figure and others would improve by modifying it to Time (d) or Elapsed time (d).

P. 8, line 277: Improve phrasing for clarity.

P. 9, line 284: Improve the figure caption of Figure 2 by adding "the temporal development" after "… oxygen production and consumption showing…" and removing it from the descriptions of the graphs A, B, C and D.

P. 10, line 289: Chlorophyll *a* should be represented with the "a" in italic here and throughout the manuscript.

P. 10, line 291: The authors refer to "differences", are these differences statistically significant? Please add information.

P. 11, line 295: Improve phrasing for clarity.

P. 11, lines 298 to 300: If the data was not collected, what does the data point refer to? Improve phrasing for clarity.

P. 11, line 300: Improve figure caption for clarity.

P. 11, line 305: Could be useful to present a graph to support the statement.

P. 12, line 312/3: Considering that the manuscript is testing potential relationships in relation to TA enhancement it would be useful to either have an additional axis showing TA or indication in the text of the reasoning behind using DIC (more biologically relevant).

P. 12, line 312/3: Add space after Figure 5. Cell abundances of the nanoeukaryotes seem high for the region and nutrient / Chl*a* concentrations found, please re-check.

P. 12, lines 315 to 316: Add Figure number to Nanoeukaryote (1) and Nanoeukaryote (2). The text should be improved for fluidity, namely reference to the figure and graphs should be cited in the text and sequentially (change the order of the graphs in the Figure or in the text). Moreover, there should be an introductory sentence relating to the observed trends in primary production and metabolic balance. Finally, in the discussion section, the dominant species of certain data points are presented, but there is no information about the initial community.

P. 13, lines 342 to 343: Elaborate on the need to have the terms nanophytoplankton and nanoeukaryote.

P. 14, lines 353 to 355: Improve sentence.

P. 16, lines 376 to 377: Specify what portion of the community is considered in this sentence.

P. 16, line 380: Please add that 4500 µmol kg^{-1} is the final TA concentration.

P. 16, lines 382 to 384: Improve phrasing and remember that there were significant differences in part of the community. Moreover, it is important to question, whether the small changes observed might have a long-term effect on the functioning of the microbial communities.

P. 16, lines 386 to 388: Care should be given when comparing oligotrophic versus eutrophic environments loosely, since communities vary seasonally, with consequences to the initial community.

P. 17, line 406: Which results? Do the authors have information to go into more detail than the group nanophytoplankton?

P. 17, line 408: The two studies considered tested different TA ranges. Therefore, one should compare within the range to which both have data for.

P. 18, lines 421 to 423: Please improve the sentence for clarity. What is meant with accumulation of inorganic nutrients? How is it related to the nitrogen cycle?

P. 19, lines 461: Elaborate on "…ion strength tolerance…".

P. 20, line 496: Citation (Morse and He, 1993) is not in the reference list. Please change "and" to "&" to uniformize formatting.

P. 21, line 516: Remove "; "from the citation (Bach et al., 2019).

P. 21, Conclusions: Despite the relevance of primary production differences, these are not referred in the conclusions, while "…minor changes in species composition…" are emphasized but the work focused on groups. Please improve the section accordingly.

P refers to page. Line counts continue throughout the manuscript.