The novelty of the study is the unique setting, but more work needs to be done to better contextualize what is found here relative to the large body of work that has been done elsewhere using similar methods and generating similar results.

The two biggest issues with this manuscript are as follows:
1) Very limited sample size
The study only has one sample location and only 4 samples from that location. How can significant findings be justified with such a small sample size. Additionally, if it was estimated that thousands of fecal pellets were captured per sample, why were only 15 used for elemental and isotopic analysis. There is so much extrapolation occurring in this manuscript from very limited actual data. All the conclusions are being formed based on a small time-window as well (only from mid-January to mid-March).

2) Very broad and sweeping statements based on significant literature findings but very little actual sample evidence from this study
There is a good amount of literature review occurring for the study site but very little of it can be traced back to results that were found in this study, let alone unique to this study. Very little, at the present iteration of this article, seems to be new about the results that were generated.

Additionally, the methods section needs a lot more work and whether small particles (single micron particles) are captured/considered needs to at the very least be addressed. Also, more qualification in the abstract is required. Much of what is presented in the abstract as novel has been well documented in many of the global ocean regions. There was significant discussion of the possibility of isotopic analysis to tease apart processes but no isotope mixing models or higher order analysis was performed (CSIA, Bayesian statistics, etc.).

Lastly, the phytoplankton section of the discussion was particularly problematic. There was much too much extrapolation. There are too many processes that could be affecting the isotopic compositions of the bulk material to assume it's only due to changes in primary production. Trophic processing is not discussed in this section at all. Neither is microbial reworking of the fecal pellets (see Wojtal et al. 2023). Additionally, the authors should think about the efficiency of the gut of the zooplankton (see Doherty et al. 2021).

Major questions

- No where is diel vertical migration discussed or explored. Why?
- The Redfield ratio was conceptualized for phytoplankton physiology. Fecal pellets have presumably undergone significant reworking. Why would one expect that the Redfield ratio of zooplankton fecal pellets would match open ocean phytoplankton cellular elemental ratios?
- Why no zooplankton measurements if you talk about carcasses? Why no experiments trying to make zooplankton poop and isolating their fecal pellets to measure for an end member?
- Need to say somewhere that large and small cylinder were grouped together and that oval and spherical were grouped together
- What are error bars on the figures? Just the standard deviation of the two replicates?

Comments

- Line 6 – why is there a ~ above the 1 in 100%? Also, why is the % sign on the next line?
- Line 9 – should be “the Redfield Ratio”?
- Line 10 and 11 – this has been shown repeatedly. Why is it being stated like a new finding?
- Sentence starting at Line 28 – all at the same time?
- What about diel vertical migration? (lines 33 to 36)
- Line 40 – what about Doherty et al. (2021), Colleen Durkin’s work, or Shea et al. (2023)?
- The sentence starting at Line 45 is hard to follow
- Sentence starting at Line 48 is confusing
- Sentence starting at Line 50 – could it not just be recycling?
- Sentence starting at Line 60 – EXPORTS did this
    - Look at Siegel et al. (2021) or Siegel et al. (2023) as a place to start (also Ken Buesseler’s work and Margaret Estapa’s work on the EXPORTS project)
- Line 112 – what was the size of the baffle?
- Line 124 – were the zooplankton alive during recovery? What about carcasses?
- Line 125 – how was the material examined under dissecting microscope? Was it on a mesh screen? What was the size of that mesh? What happened to smaller particles
- Line 126 – was material removed? What happened to it? How was it determined that material should be removed?
- Line 131 – how were those fecal pellets selected? Why only 15? What happened if there were more?
- Line 133 – why air dried? What method are you following?
- Line 134 – reference for method following?
- References for method section overall?
- Was EA data correction only done with 1 point calibration? How was data processing done?
- Line 161 – what was the criteria for oval vs. round? Was that only done by one person to keep consistent?
- Line 169 – how was total pellet count determined? Also by scaling?
- Line 171 – I don’t get how you get a proportion of the total POC or PN that is fecal pellet from what is described
- Line 173 – so this was just ignored?
- Line 178 – how do you test for normality with 4 samples?? How do you do any statistics with 4 samples?
- Lines 185-186 – how can you say this if you are ignoring so much of the POC (small particles)?
- Line 188 – reference figure 2
- Line 202 – so FPC and PFN don’t correlate?
- Sentence starting at Line 263 – a very bold claim for a very small sample size
- Line 274 – how do you get week-scale changes from sampling periods that were much longer than that?
- Paragraph starting at Line 327 – was there any evidence of TEP present?
- Line 340 – what is the range for the region??

- Could this be a constructive interference (synergistic) effect?
- Line 381 – what upper and lower traps?