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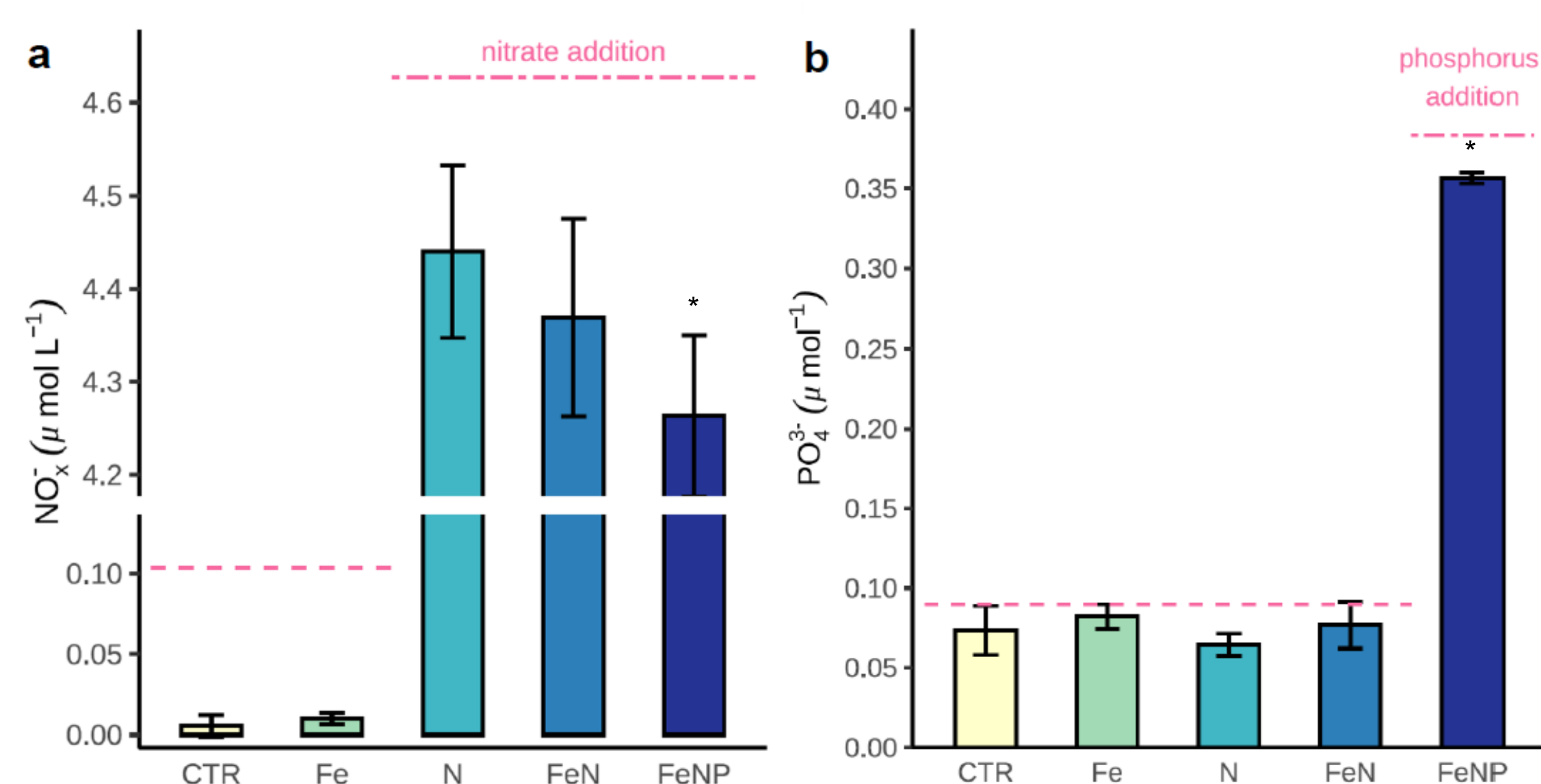
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GOALS

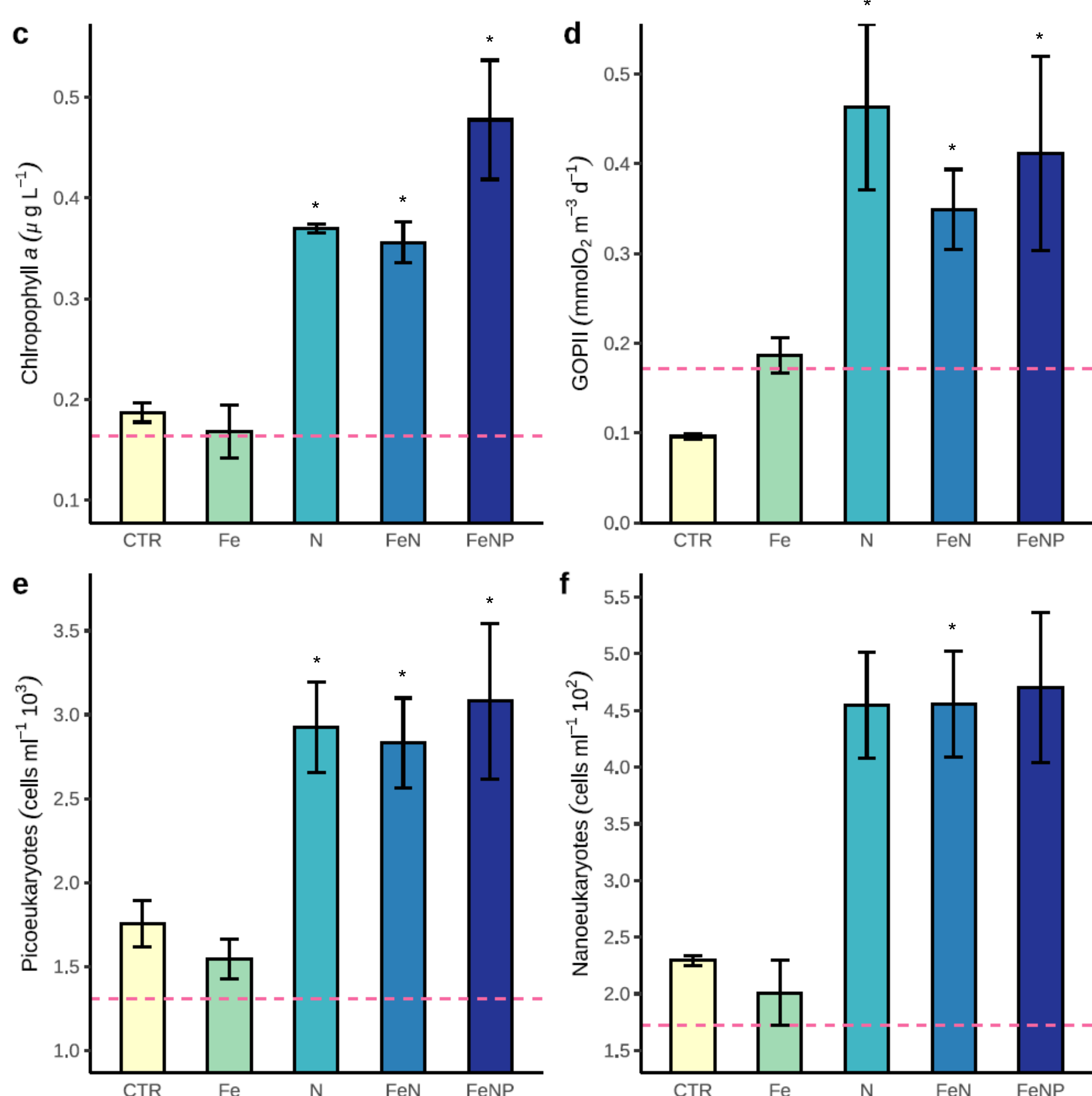
- To understand which nutrients are primarily responsible for limiting the growth of phytoplankton and heterotrophic bacteria in the offshore waters of the Canary Islands

RESULTS

Plankton communities assimilated nearly four times more inorganic nitrogen in the full nutrient treatment compared to the control and iron treatments between initial and 48-hour conditions.



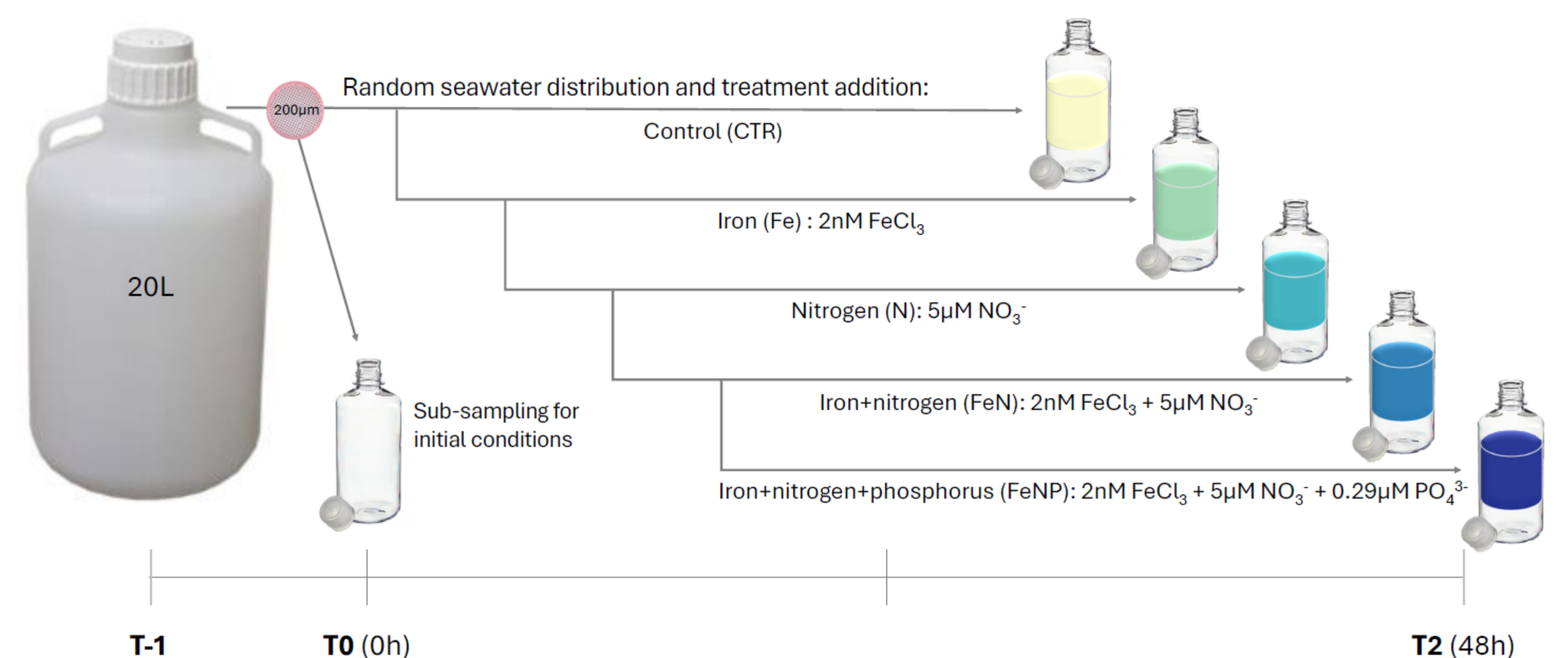
Chlorophyll *a* concentration doubled concurrently with the increase in phytoplankton growth after macronutrient addition, as did gross oxygen production.



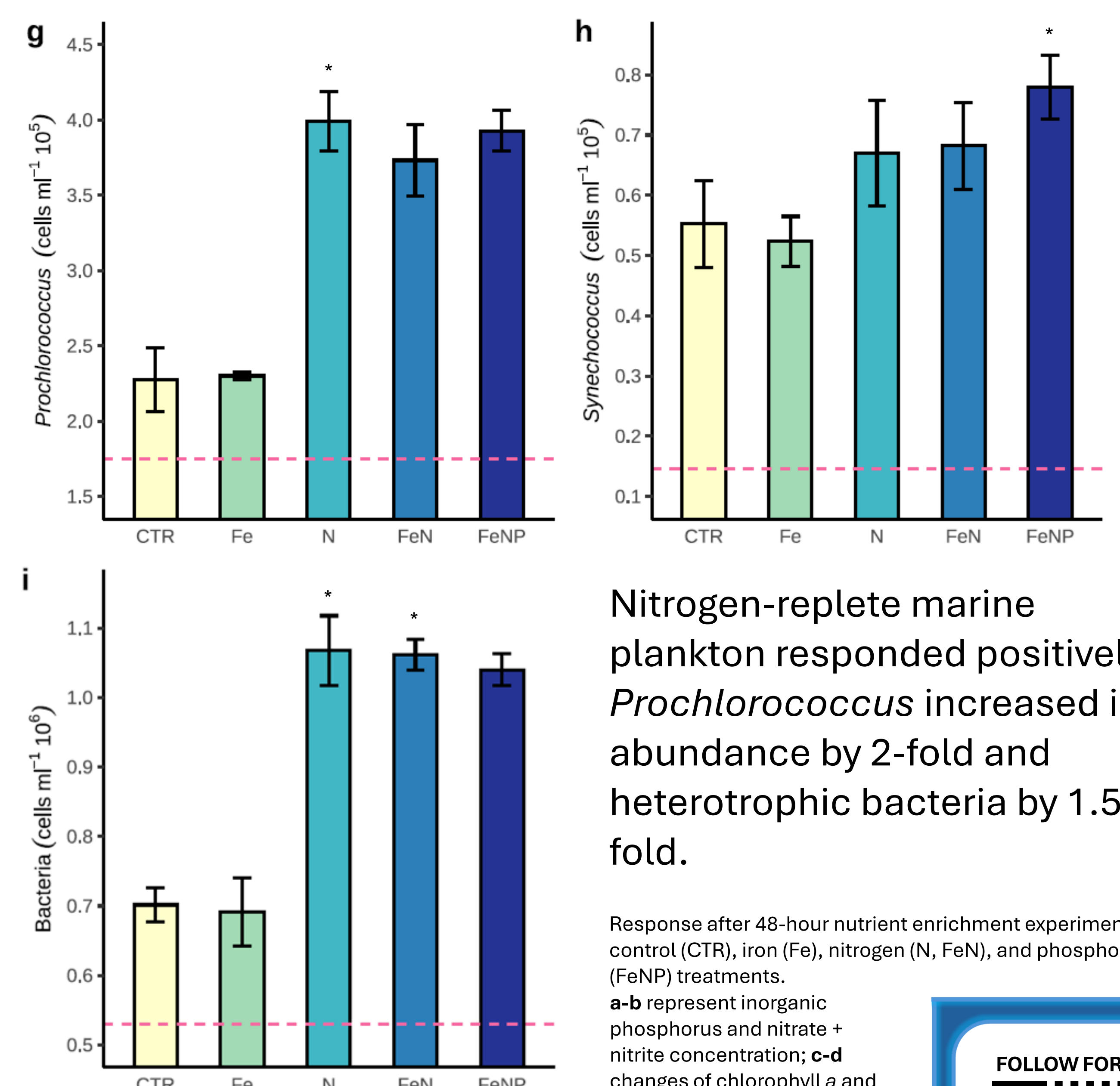
CONCLUSIONS

- Marine plankton benefited the most from nitrogen, implying that nitrogen is limiting in the quasi-stratified waters of the Canary region.
- No response was observed to the addition of dissolved iron, suggesting that iron, and perhaps phosphorus, is transported to the archipelago by the continuous Saharan dust deposition.

METHODS



- Abundance of heterotrophic bacteria, *Synechococcus*, *Prochlorococcus*, pico- and nano-eukaryotes via flow cytometry
- Chlorophyll *a* estimation via fluorometry
- Photo-physiology characterisation via Single Turnover Active Fluorometry
- Inorganic nutrients via segmented fluorometric determination



Nitrogen-replete marine plankton responded positively; *Prochlorococcus* increased in abundance by 2-fold and heterotrophic bacteria by 1.5-fold.

Response after 48-hour nutrient enrichment experiments in control (CTR), iron (Fe), nitrogen (N, FeN), and phosphorus (FeNP) treatments.

a-b represent inorganic phosphorus and nitrate + nitrite concentration; c-d changes of chlorophyll *a* and gross oxygen production;

e-i abundance of picoeukaryotes, nano-eukaryotes, *Prochlorococcus*, *Synechococcus* and heterotrophic bacteria. Error bars are means of replicates (n=3). The horizontal dashed lines indicate initial seawater conditions, except where phosphorus and nitrate were added. The statistical significance was tested by Kruskal-Wallis test using Dunnett's test ($p < 0.05$, *).

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