

## ***Interactive comment on “Introduction to the project VAHINE: VAriability of vertical and troPHic transfer of diazotroph derived N in the south wEst Pacific” by S. Bonnet et al.***

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This manuscript is a straightforward description of a mesocosm experiment denominated “VAriability of vertical and troPHic transfer of diazotroph derived N in the south wEst Pacific” undertaken in waters of New Caledonia. The article is intended to serve as an introduction to a special volume on the subject by describing the goals of the experiment, the experimental setup, and the environmental conditions prevailing throughout the experiment’s course. While the article is generally well written and structured, several grammatical errors and instances of improper use of the English language (e.g. past perfect instead of simple past) detract from its quality. I have taken the liberty of going through the manuscript using “track changes” to provide suggested rewrites of

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these uncomfortable passages.

Two further comments:

- After what appears to have taken substantial exercise of the imagination, the authors came up with the acronym “VAHINE” choosing the appropriate lettering from the title (see above). It is puzzling then that the authors have not seen fit to explain, justify or even acknowledge this rather unusual acronym which, to my limited understanding of the Polynesian language, means “woman”. Perhaps a sentence to that effect might be in order.

- While it is understandable that collaborating authors will want to set forth their results in detail in their individual articles, the reader of this manuscript is left largely in the dark as to results of the experiment: the fate the N fixed through P stimulation. Quoting from the manuscript:

The main scientific questions of the VAHINE project were:

i) What is the primary route of transfer of DDN through the planktonic food web, i.e. is DDN preferably transferred to large size (e.g. diatoms), small size (pico-, nanophytoplankton) phytoplankton, or to the microbial food web? How much DDN is transferred to zooplankton?

ii) Does the development of diazotrophs influence auto- and heterotrophic plankton diversity and gene expression dynamics, as well as pico-, nano-, and microphytoplankton abundances? Do they influence zooplankton dynamics?

iii) Does the development of diazotrophs significantly modify the stocks, fluxes or, ratios of the major biogenic elements (C, N, P)?

iv) Does the development of diazotrophs influences the efficiency of carbon export? Is this export direct or indirect?

Once again, a brief sentence or two describing the major findings appears to be in

order.

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