

Interactive comment on “Springtime contribution of dinitrogen fixation to primary production across the Mediterranean Sea” by E. Rahav et al.

Anonymous Referee #1

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This manuscript describes field measurements of nitrogen fixation carried out in the Mediterranean Sea (MS) during spring. The presented data is interesting and nicely complements existing data on the MS (mainly from summertime). The work is technically sound and the conclusions are well supported by the presented data. Further, the manuscript is very well written and easy to read (Thank you!). Thus, I would support publication in Ocean Science after consideration of minor comments/technical corrections as outlined below: pg 3, l 8: I think there is a “rates” twice in this sentence pg 3, l 19: I think it would be more appropriate to write, e.g. “...as the gene encoding part of the nitrogenase complex...” as the gene itself is not mediating N₂ fixation pg 3, l 27 and l 29: up to 35% “to” new primary production and ~ 0.5 – 2% “to” the new production rather than “of” pg 5, l 9: I believe that Wilson et al. (2012) used less volume in their incubations, i.e. they added 50 ml of 15N₂-enriched water to a ~ 4.5 L bottle

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yielding ~ 1.5 atom%. Please check the values. pg 6, l 10: the detection limit for silicic acid should be at least as high as the precision pg 7, l 14: “NO₂-” and “NO₃-” instead of NO₂ and NO₃. pg 7, l 18: I think there is a “.” missing after Rhodes Gyre and then continue with “Dissolved” Method section: For completeness, I think you should mention which stations are defined as Eastern Mediterranean Sea (EMS) and which as Western MS (WMS) (also related to Figure 3) pg 8, l 19: “fold” instead of “folds” pg 8, l 27 and pg 9, l 1: on Figure 1/map the easternmost station is 294; maybe the two stations (290 and 294) got mixed up here? pg 9, l 5-8: I think this should be the other way around (it is correct a bit further down in the manuscript): the eastern basin, values were below 1 (suggesting more heterotrophy) and in the western basin above 1 (suggesting more autotrophy) pg 9, l 15: “WMS” instead of “WNS” pg 10, l 18: I think what you mean is “heterotrophic diazotrophs” or “heterotrophic bacteria”; diazotrophic bacteria alone would also include cyanobacteria pg 11, l 10: To me this seems more like “observations” or “differences” rather than “changes” pg 11, l 14: delete “so” or replace by “thus” or “therefore” pg 12, l 17: see above, I think you meant heterotrophic diazotrophs rather than just bacterial diazotrophs Table 2 and Figure 3: chose one of these consistently: nano- or picoeukaryotes Figure 5 B: It might be worth putting some error bars on these ratios.

Interactive comment on Ocean Sci. Discuss., 10, 1, 2013.