

Heterotrophic and autotrophic contribution to dinitrogen fixation in the Gulf of Aqaba

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Fig. S1. Comparison between two representative stations off the Gulf of Aqaba coastline ('Station A', also sampled in the present study, and 'Station OS', routinely sampled for several years) from 2007 as an example during (A,C) winter mixing and (B,D) summer stratification for (A,B) temperature and (C,D) chlorophyll. Data derived from the Israel National Monitoring Program at the Gulf of Aqaba (www.iui.eilat.ac.il/Research/NMPMeteoData.aspx). No significant change was found between the stations ($p > 0.05$).

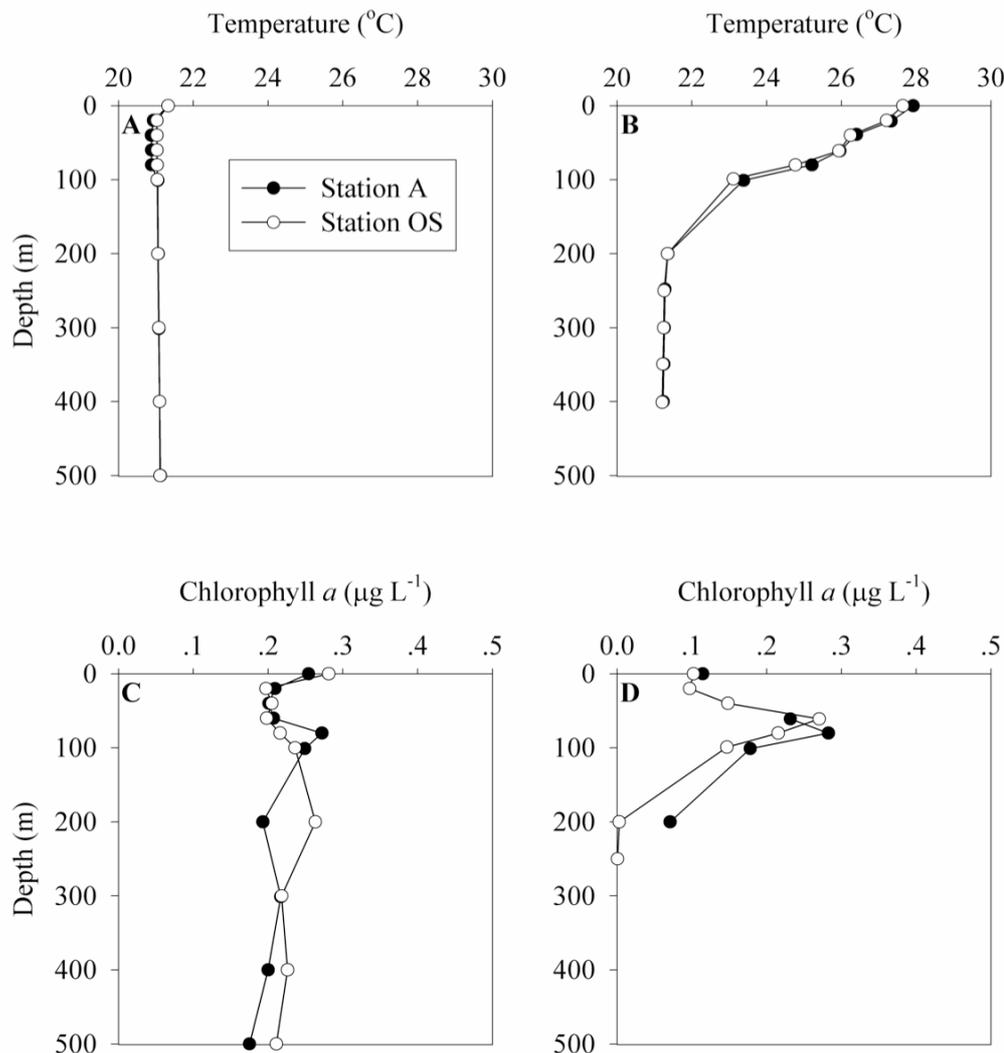


Fig. S2. Comparison between the additions of $^{15}\text{N}_2$ by gas injection (i.e. “bubble technique”; Montoya et al. 1996) and as enriched seawater (Mohr et al. 2010) in the northern Gulf of Aqaba during July 2012. Enriched seawater was added in different quantities to the sampling bottles (4.5-l); either as 3.3% (150 ml) or 6% (270 ml) of total bottle volume ($n = 4$). The letters above the columns represent statistically significant differences (1-way ANOVA and a Fisher LSD means comparison test; $p < 0.05$) for mean values of N_2 fixation between treatments.

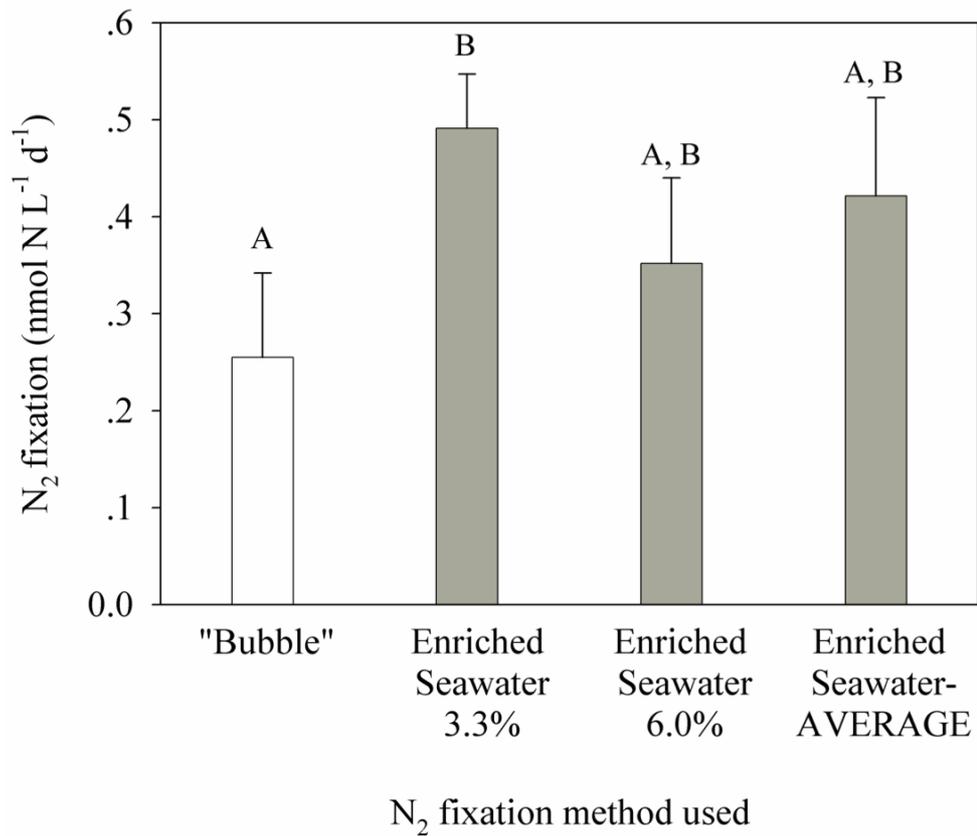


Table S1. Results of the statistical comparison (ANOVA and Fischer's test) between the different experimental simulations (control, +P, +3-(3,4-dichlorophenyl)-1,1-dimethylurea [DCMU], and amino acids) at the end of the experiment for bacterial (BP) and primary production (PP) rates and dinitrogen (N₂) fixation. NS: the difference between the 2 treatments is not significant; S: the difference between 2 treatments is significant (p < 0.05)

Sampling date	Thermal stability	Sampling depth (m)	BP	PP	N ₂ fixation
P vs. control					
March 2010	Mixed	10	S	S	S
September 2010	Stratified	10	S	NS	S
DCMU + amino-acids vs. control					
July 2012	Stratified	10	S	S	S
		85	S	S	S
		160	S	NS	S

LITERATURE CITED

- Mohr W, Großkopf T, Wallace DWR, LaRoche J (2010) Methodological underestimation of oceanic nitrogen fixation rates. PLoS ONE 5:e12583
- Montoya JP, Voss M, Kahler P, Capone DG (1996) A simple, high-precision, high-sensitivity tracer assay for N₂ fixation. Appl Environ Microbiol 62:986–993