

**Table S1.** Abundance of two unicellular diazotrophs in the South Atlantic as determined by qPCR. Depth profiles are shown for stations where depth profiles of N<sub>2</sub>-fixation were measured or where there were detectable numbers below the surface. UD = undetected; DNQ = detected, not quantifiable; data not available indicated with a dash.

	Station	Date	Lat. (°N)	Lon. (°E)	depth (m)	UCYN-A (copies l <sup>-1</sup> )	<i>Crocosphaera</i>
	1	18Nov07	-11.25	330	8	UD	DNQ
	2	19Nov07	-11.25	332.5	8	DNQ	UD
	3	20Nov07	-11.5	335	8	UD	DNQ
5	3	20Nov07	-11.5	335	20	-	DNQ
	3	20Nov07	-11.5	335	40	DNQ	-
	6	23Nov07	-12.5	342.5	8	DNQ	UD
	7	24Nov07	-12.5	345	8	UD	UD
	8	25Nov07	-12.5	347.5	8	DNQ	UD
10	9	25Nov07	-12.5	350	8	DNQ	DNQ
	10	26Nov07	-12.5	352.5	8	DNQ	UD
	11	27Nov07	-12.5	355	8	UD	86
	12	28Nov07	-13.25	357.5	8	UD	DNQ
	13	01Dec07	-13.25	0	8	DNQ	UD
20	13	01Dec07	-13.25	0	20	UD	UD
	14	02Dec07	-13.75	2.5	8	UD	UD
	15	03Dec07	-13.6	5	8	DNQ	UD
	16	04Dec07	-14.25	7.5	8	UD	UD
	17	04Dec07	-14.75	10	8	42573	230
25	17	04Dec07	-14.75	10	20	307601	UD
	17	04Dec07	-14.75	10	40	720	UD
	17	04Dec07	-14.75	10	70	3233	-
	17	04Dec07	-14.75	10	110	775	-
	18	05Dec07	-14.75	11.5	8	DNQ	DNQ
30	19	05Dec07	-14.75	12.2	8	21847	UD
	19	05Dec07	-14.75	12.2	20	524	DNQ
	19	05Dec07	-14.75	12.2	40	DNQ	DNQ
	19	05Dec07	-14.75	12.2	70	DNQ	-
	19	05Dec07	-14.75	12.2	110	DNQ	-
35	20	06Dec07	-17.5	11.25	8	DNQ	DNQ
	21	07Dec07	-20	12	8	DNQ	-
	22	08Dec07	-24	13.5	8	DNQ	-
	24	09Dec07	-25	13.5	8	UD	-
	25	10Dec07	-25	11.5	8	DNQ	UD
40	27	11Dec07	-25	10	8	DNQ	-