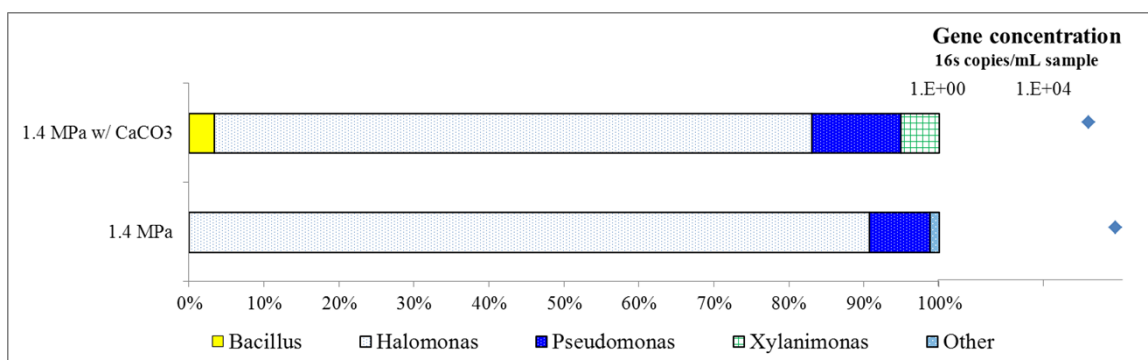


CO₂ concentration and pH alters subsurface microbial ecology at reservoir temperature and pressure

Djuna M Gulliver,^{a,b} Gregory V Lowry^{a,b} and Kelvin B Gregory^{*a,b}

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Supplementary Information



- 10 **Figure SI.1** In order to better understand the effect of buffering on the CO₂-exposed microbial ecology, two additional reactors were pressurized for 7 days with 1.4 MPa CO₂; one reactor only contained initial sample and one reactor contained initial sample with 1 g/L CaCO₃. The non-buffered reactor was modelled to have a pH of 4.4, and the buffered reactor was modelled to have a pH of 5.0. However, the initial sample used for these experiments had a long hold time (over 1.5 years) in the 4 °C refrigerator. For this reason, this stored initial water must be discussed as a different sample, as the initial microbial ecology had changed during the hold time. The effect of CO₂ exposure was similar in the absence and presence of calcite to buffer against pH
- 15 shifts. The absence of *Marinobacter* in these two experiments is assumed to be due to the storage time of the initial sample. The diversity appeared decreased compared to the initial sample in both reactors. Communities from both reactors were overwhelmingly *Halomonas*. Gene concentration was similar between reactors.

	1 day	7 days	56 days
0 MPa CO ₂	0.68	0.88	0.83
0.1 MPa CO ₂	0.58	0.86	0.87
1.4 MPa CO ₂	0.67	0.81	0.85
14 MPa CO ₂	0.73	0.90	N/A

- 20 **Table SI.1** Good's coverage of 1 day, 7 day, and 56 day incubations for 0 MPa, 0.1 MPa, 1.4 MPa, and 14 MPa pCO₂ exposures. Good's coverage was calculated in Mothur (Schloss, 2009). Values indicate sufficient coverage given the very low diversity in the samples.