Supplementary Figure S1. Determination and sensitivity analysis of *Geobacter*'s maximal uptake rate (A) and uptake affinity (B) of Hard-to-use Fe(III) using the aqueous Fe(II) concentration data from 2002 Rifle Experiment (Anderson *et al.* 2003). This figure shows that a Vmax value of 30 mmol/gdw/hr and a Km of 1 mM can best predict the production of aqueous Fe(II).

Supplementary Figure S2. Ideal batch reactor model simulations with varying initial ratio of *Geobacter* and SRB beginning with cell numbers 100x less than originally examined. In the cell number row, green line indicates *Geobacter*, blue line indicates SRB.

Supplementary Figure S3. Ideal batch reactor model simulations with varying initial ratio of *Geobacter* and SRB beginning with 5mM Easy-To-Use Fe(III) more than doubling the original amount of total Fe examined. In the cell number row, green line indicates *Geobacter*, blue line indicates SRB.

Supplementary Figure S4. *In silico* predictions of trends in the number of SRB and the number of *Geobacter* as well as acetate, sulfate, and Fe(III) concentrations starting with 5mM Easy-To-Use Fe(III) simulating an Fe(III) amendment at the start of the experiment.
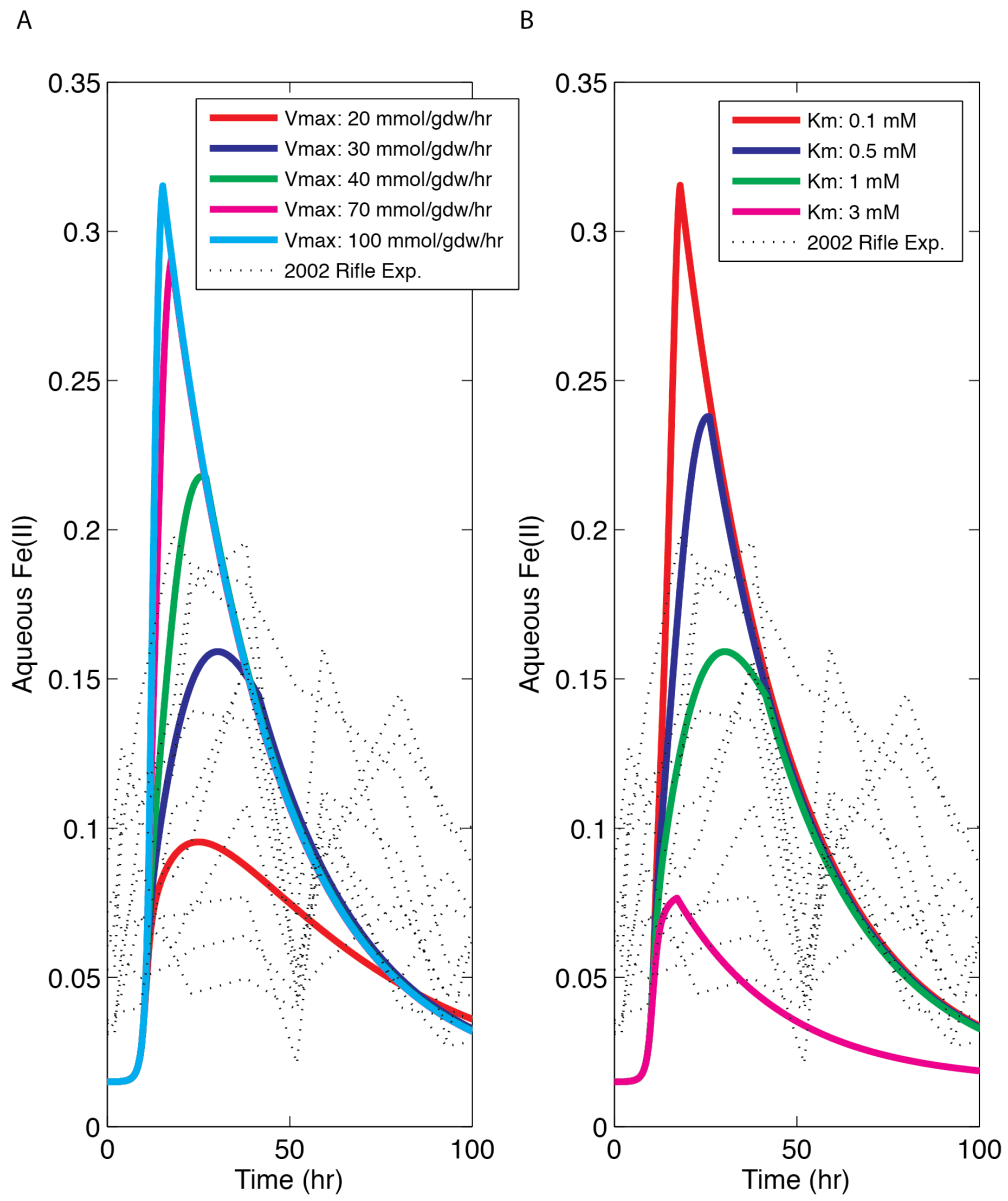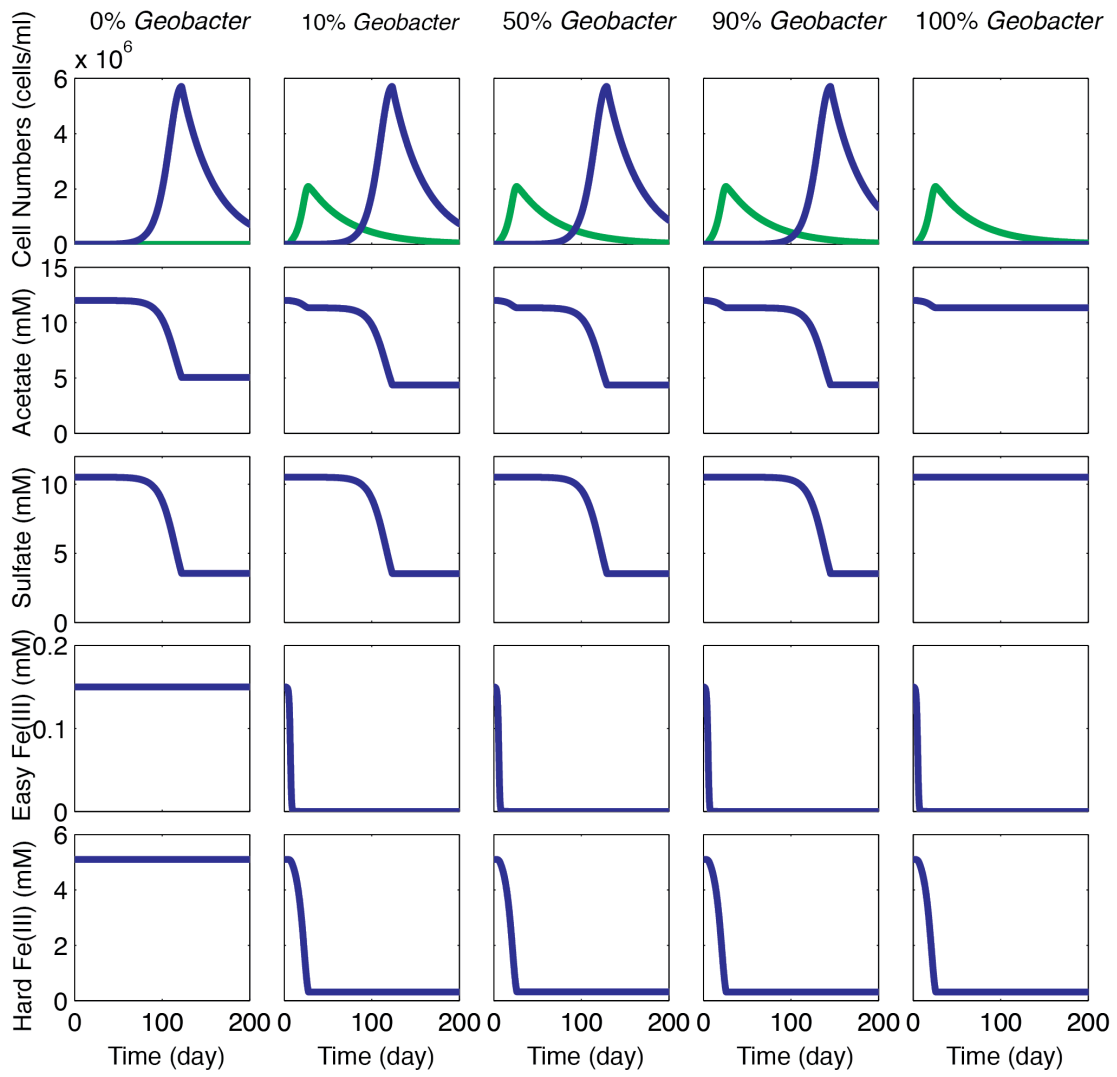
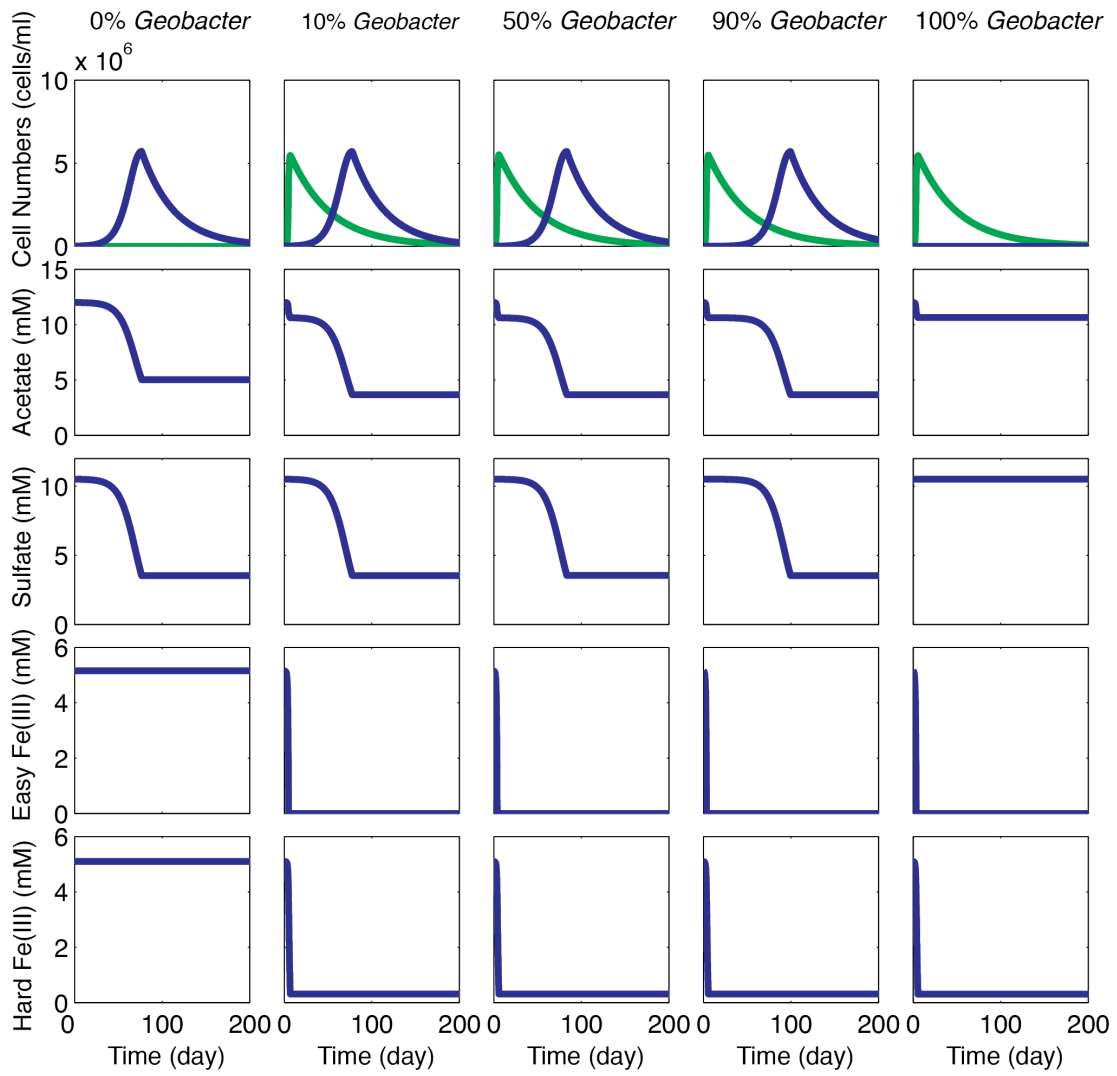Figure S1

Figure S2

Figure S3.

Figure S4.