

Next generation sequencing for the water industry

Challenge Week 2015

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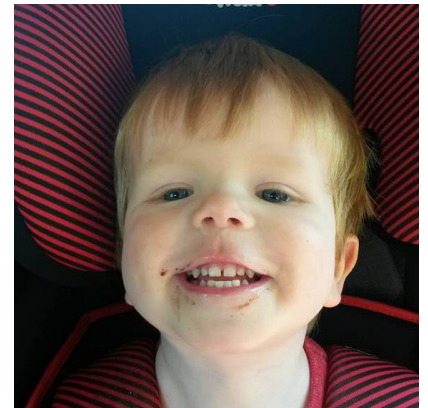


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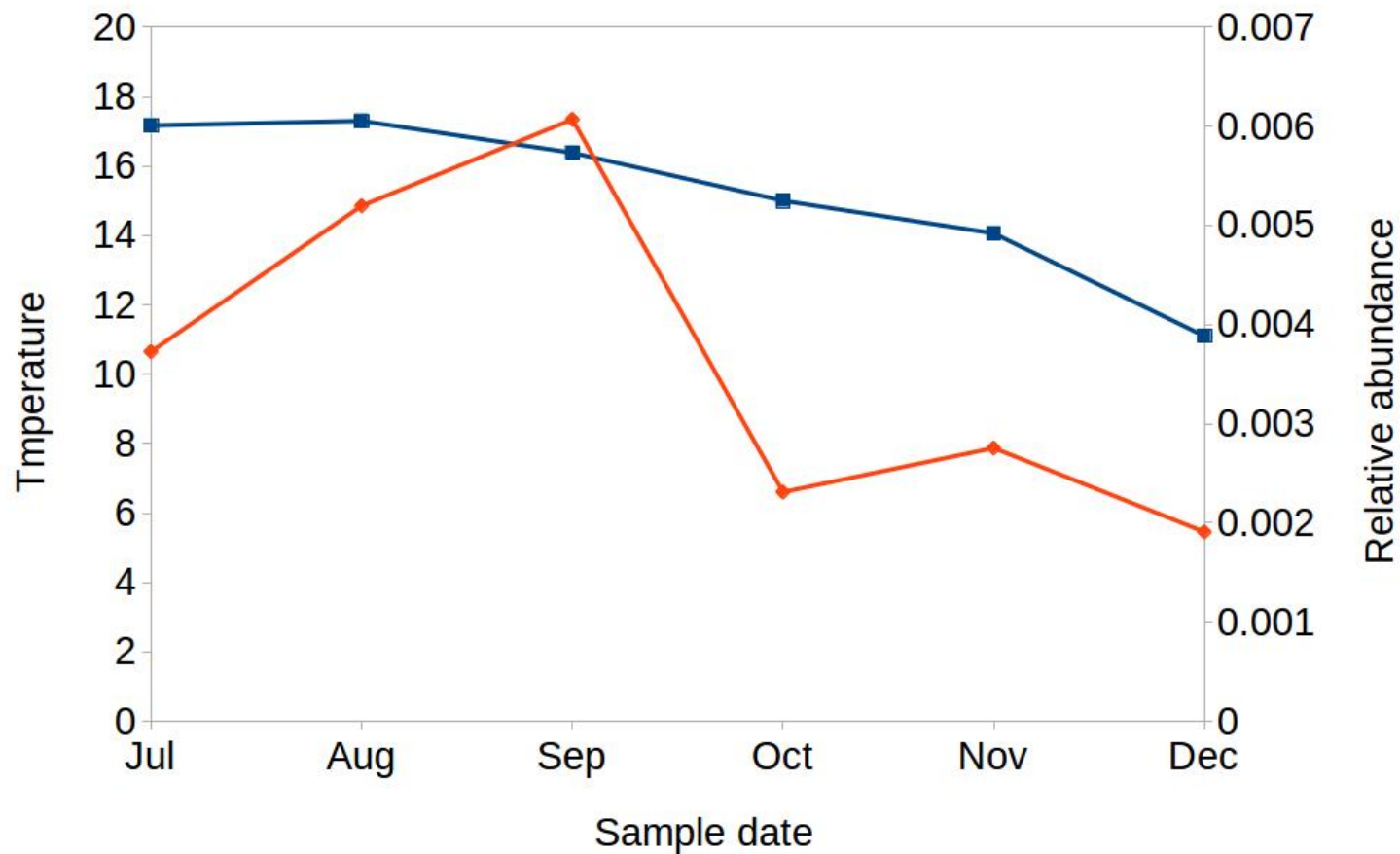
Project overview

- Little use of contemporary molecular biology in the water industry – why?
- 4 year EngD project with £36k lab budget looking at activated sludge and microbial source tracking
 - Set up the sequencing facility
 - Designed and built a small high throughput computing facility, then wrote the software it runs
 - Collected, processed and analysed data from 40 activated sludge plants and 220 samples from a bathing water catchment
- Much more can be done – AD plants, sand filters, distribution biofilms



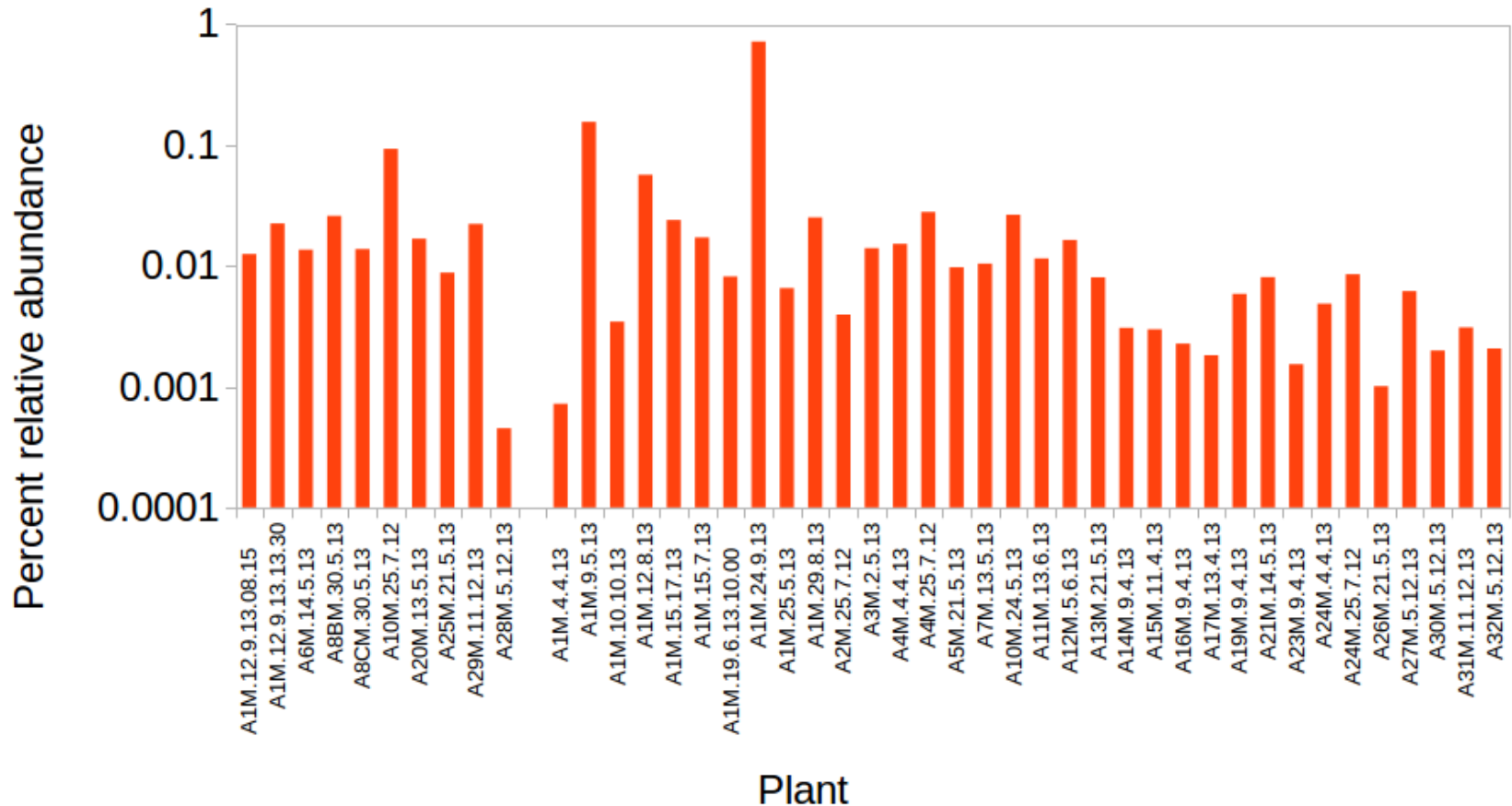
Activated sludge

Ammonia oxidising bacteria plotted against average aeration lane temperature



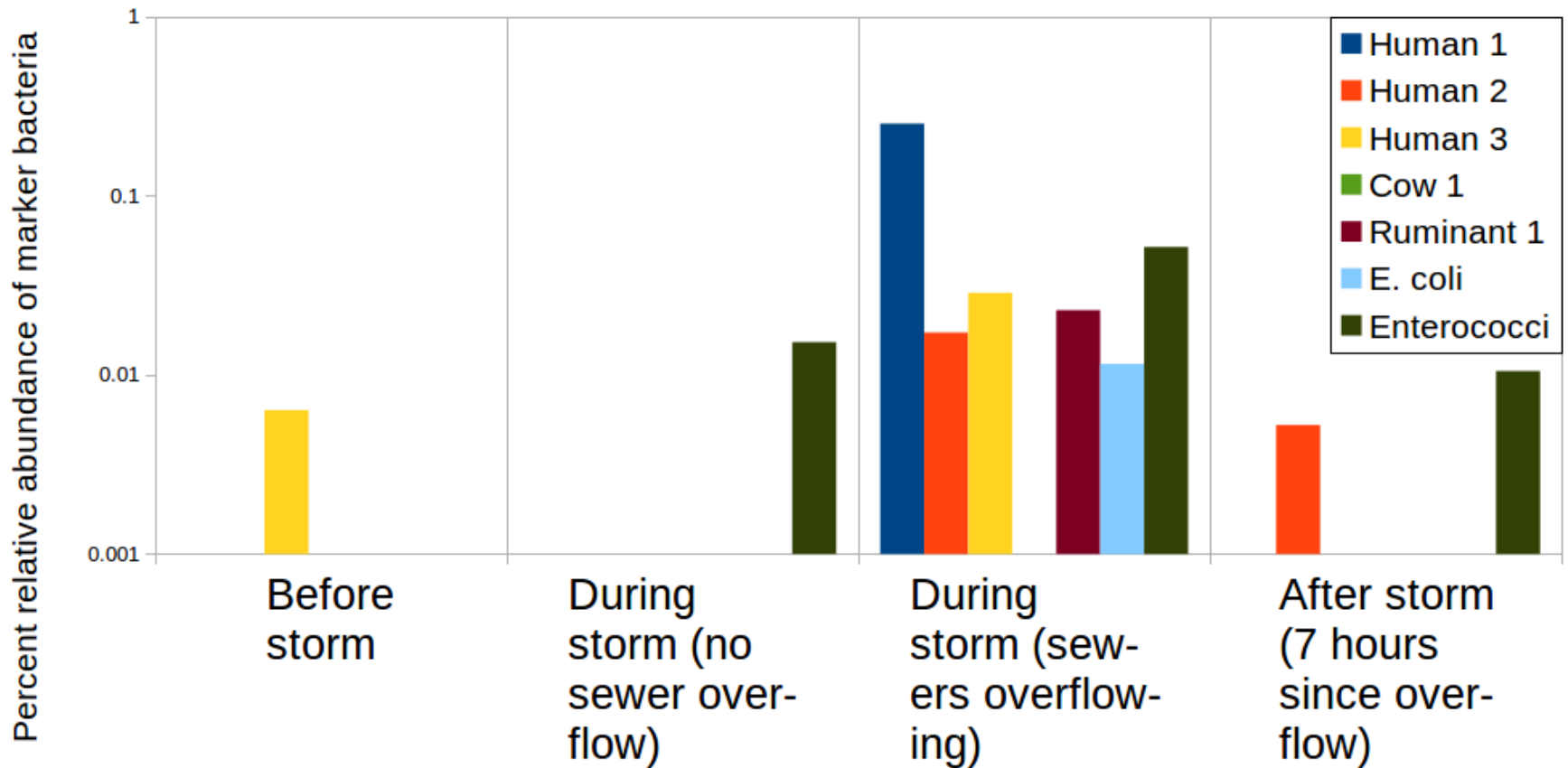
Activated sludge

Relative abundance of mycolata and Microthrix sp. in foaming and non-foaming plants



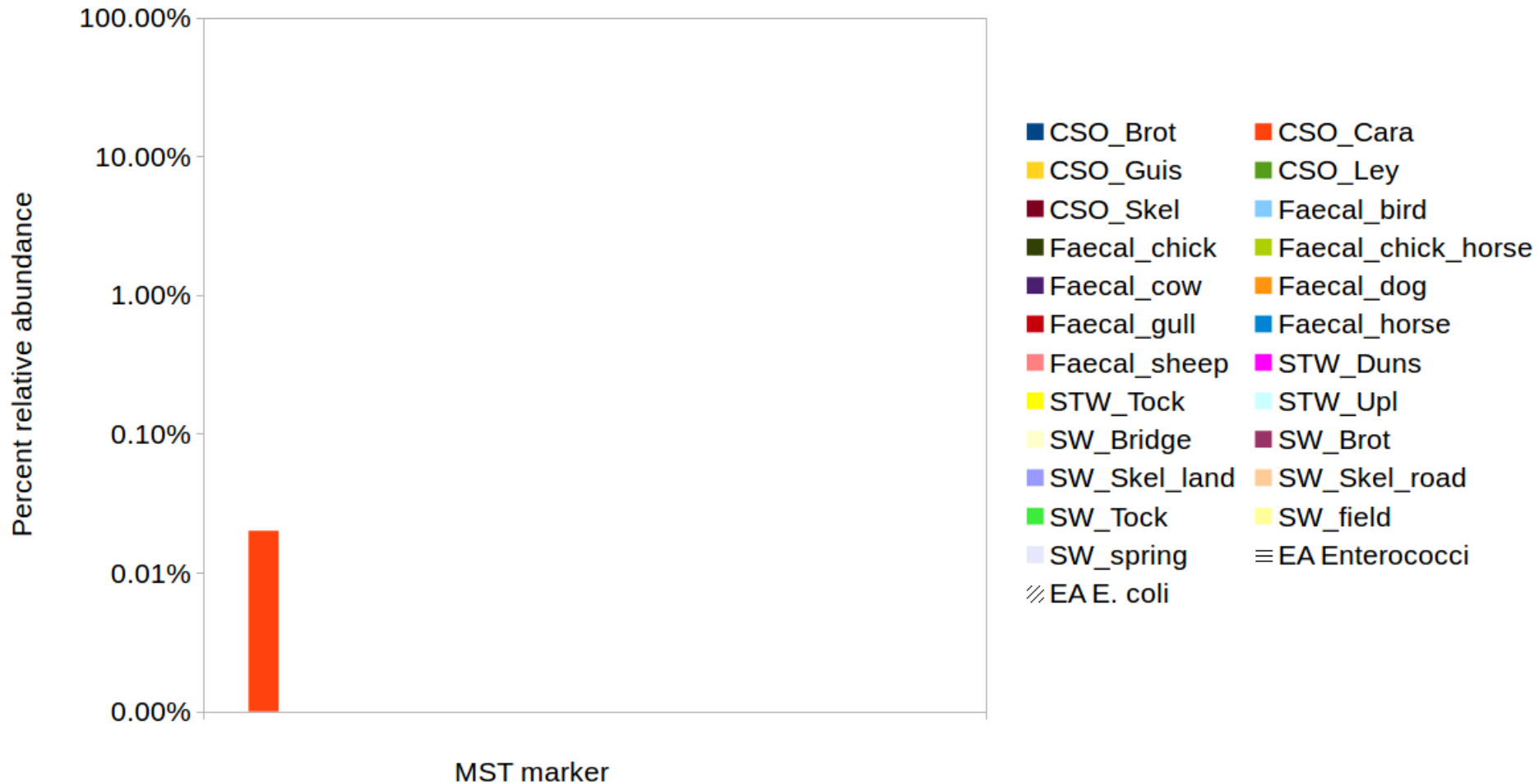
Microbial source tracking

Microbial source tracking faecal markers during a storm event



Microbial source tracking

Microbial source tracking at beach A 10/08/14 (during storm before CSO flow)



Microbial source tracking

Microbial source tracking at beach A 10/08/14 (during storm with CSO flow)

