



Carbonate chemistry on D366

Toby Tyrrell



D366 Carbon



Bioassays



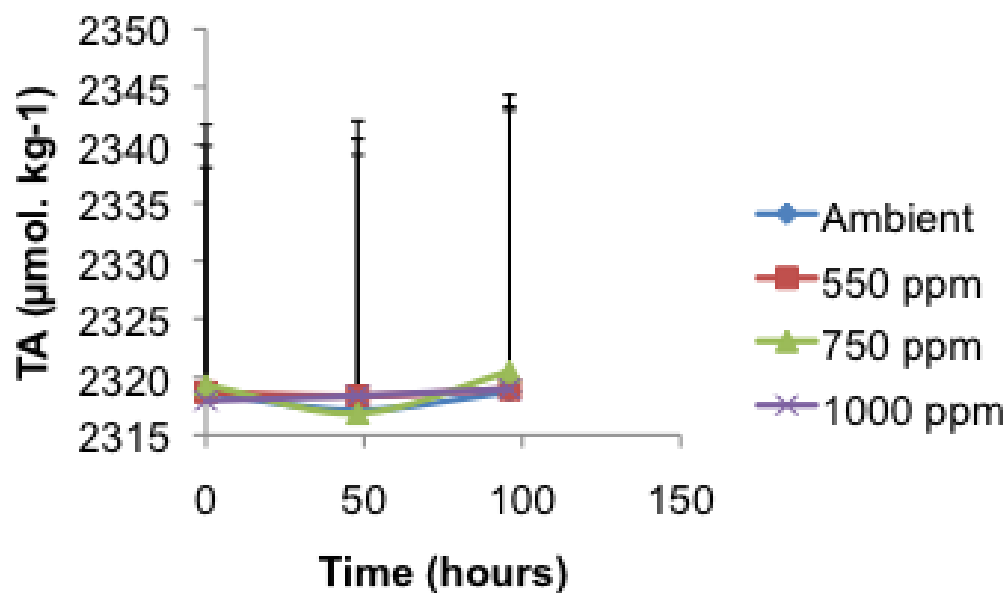
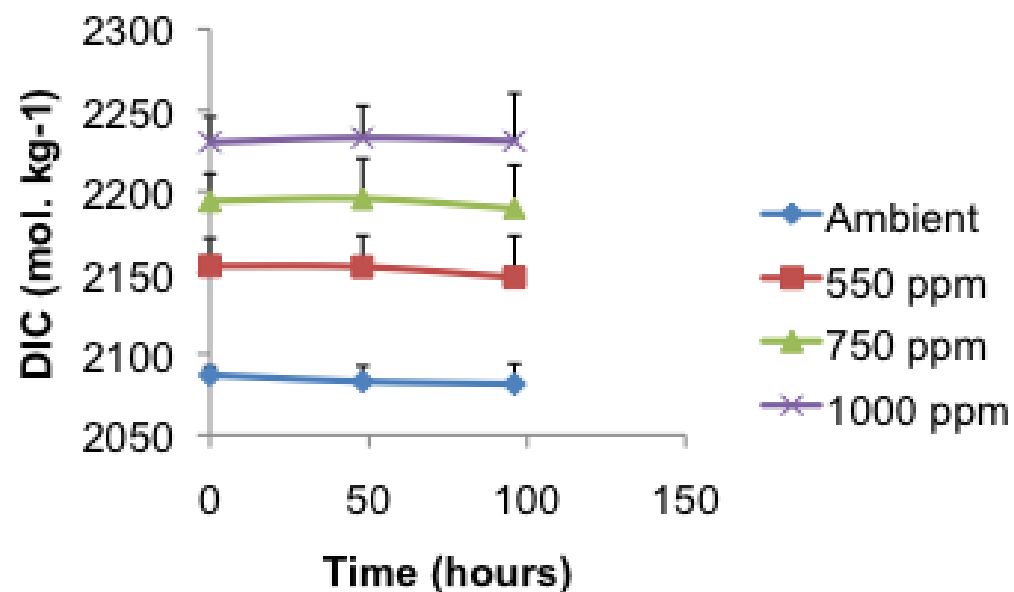
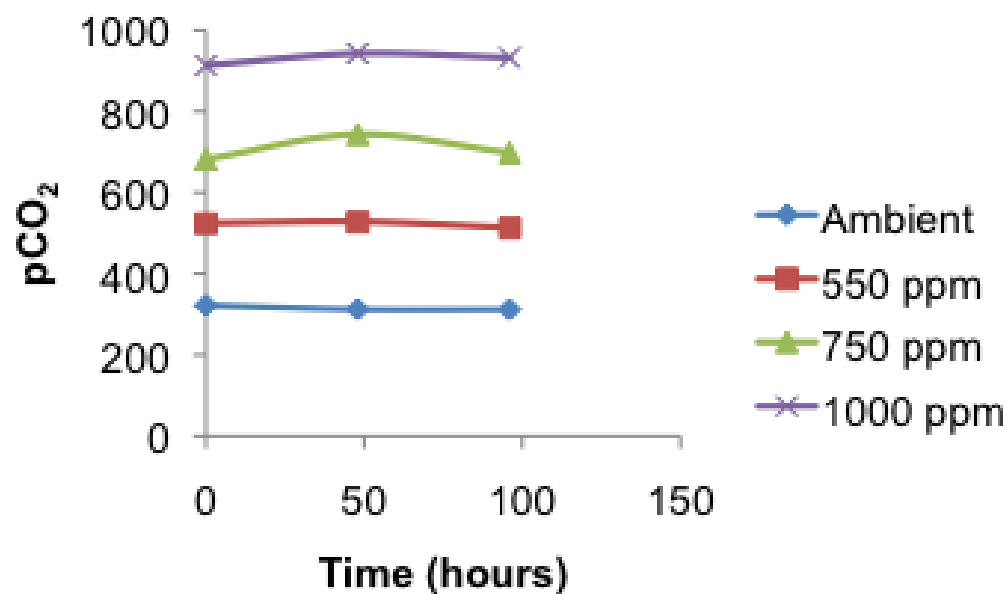
Carbon Manipulation Methods

Acid/base additions: widely used, becoming less popular last few years. pH can be adjusted to correct values but no change in DIC.

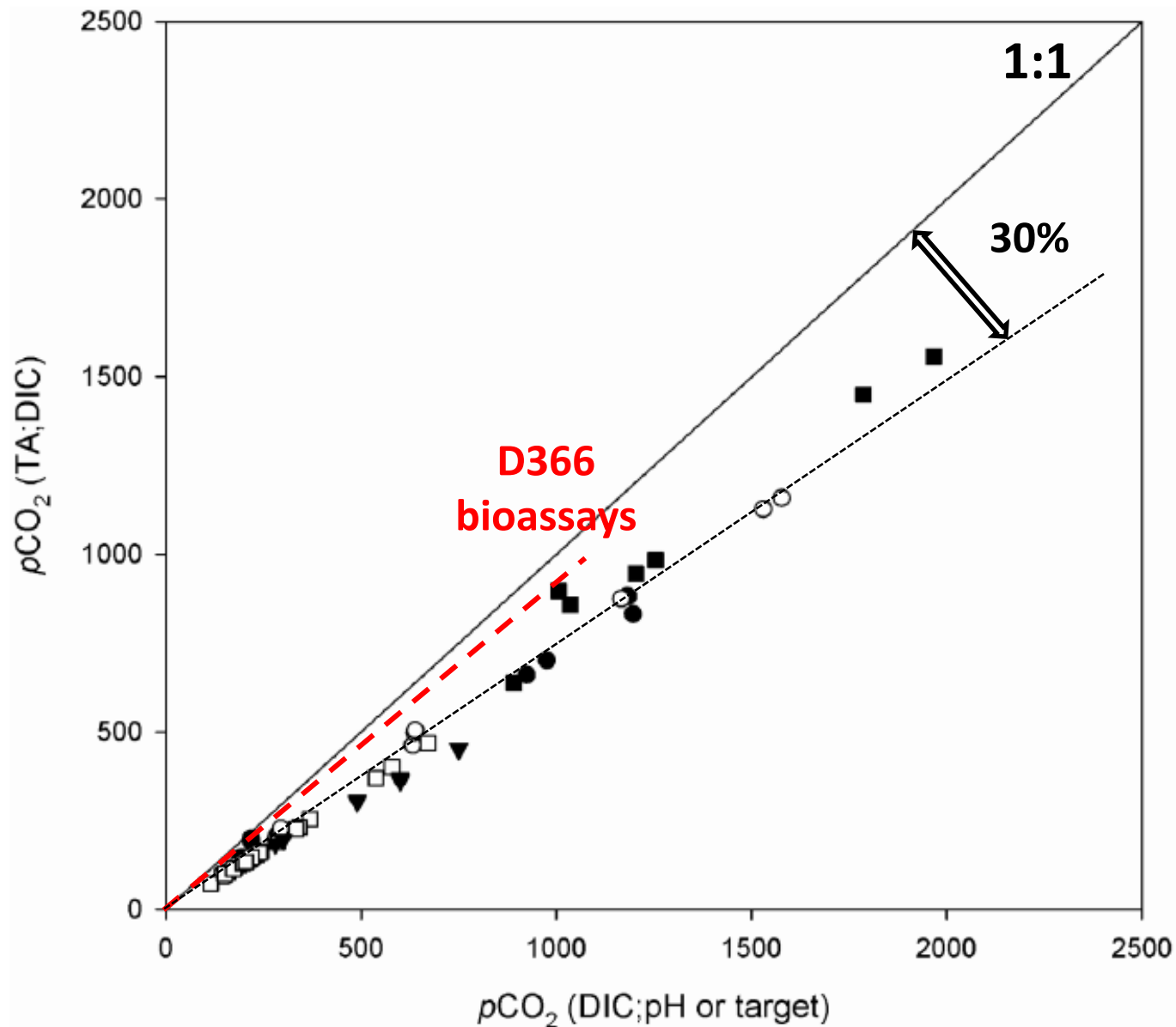
CO₂ bubbling: quite widely used. Realistic change to carbonate chemistry but physical disruption/disturbance to cells.

Acid & bicarbonate addition: becoming more widely used. Realistic and lack of physical disturbance.

Bioassay D366 results – Carbonate chemistry – all experiments (Dumousseau)

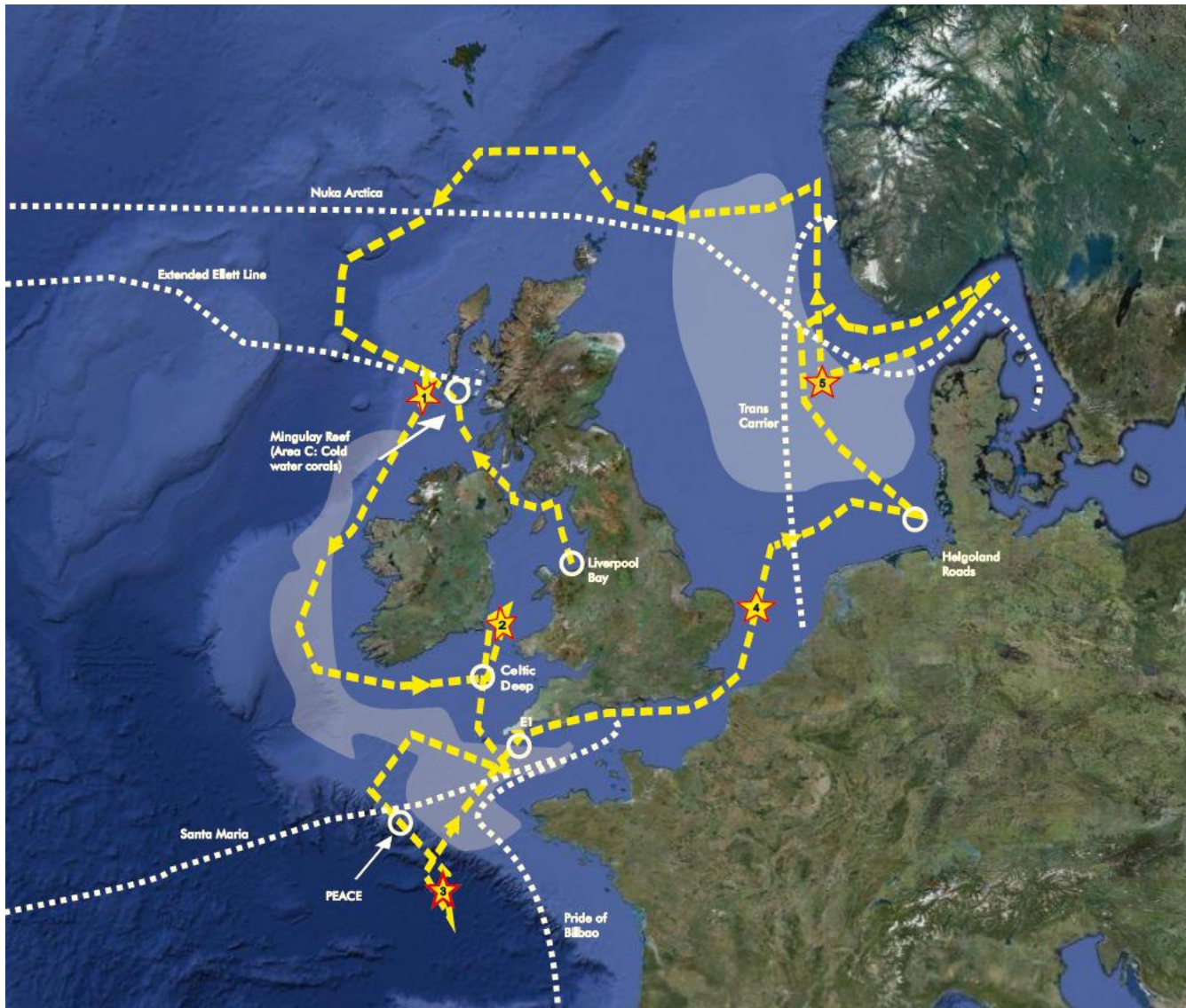


30% pCO₂ discrepancies?



(Hoppe et al, 2012, Biogeosciences Discuss., 9, 1781–1792)

First UK Ocean Acidification Cruise



June-July 2011

PSO: Eric Achterberg

**70 CTD stations
(1500 Niskins)**

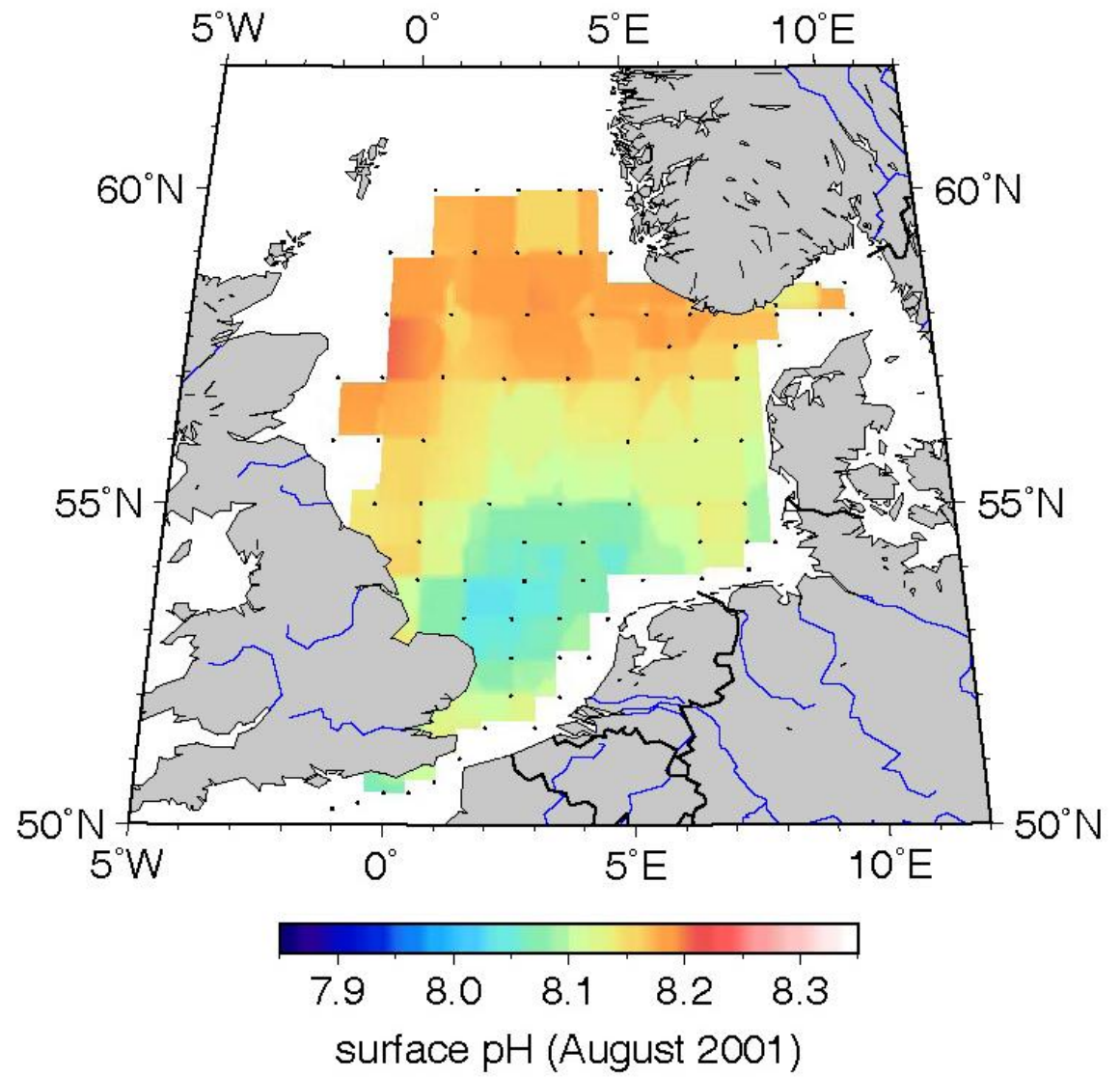
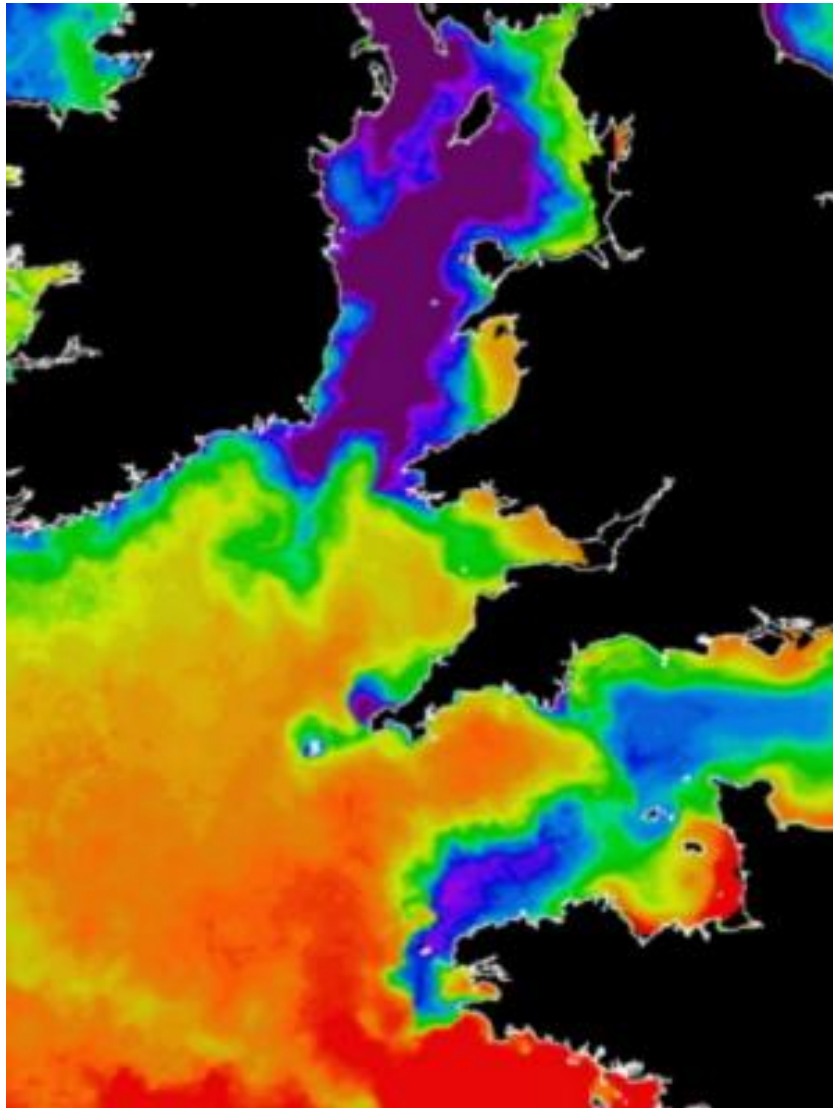
320 UW sampling points

1000 FC sampling points

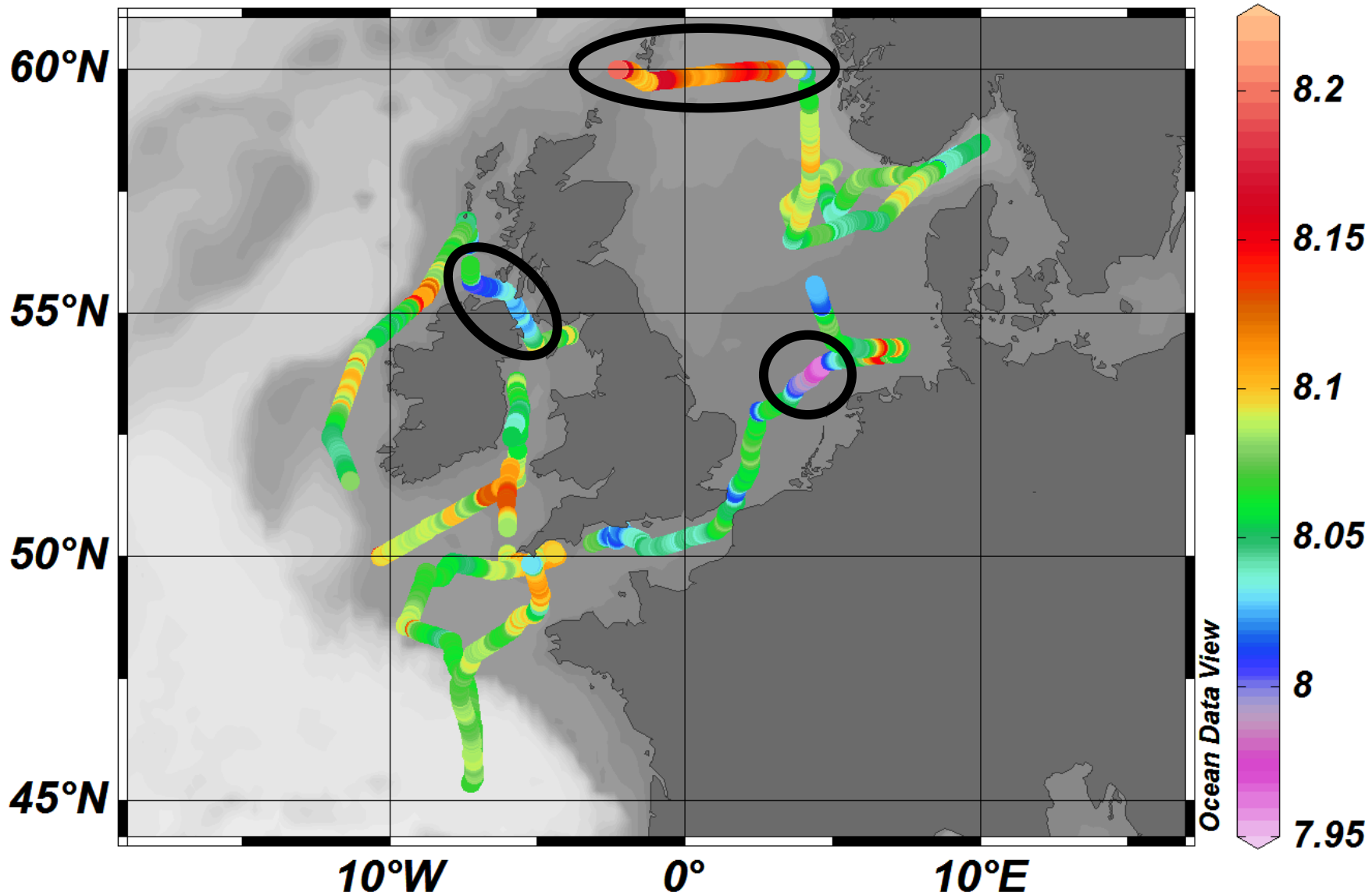
**5 bioassay experiments
(350 bottles)**

**2 tonnes seawater
filtered**





D366 surface water pH



preliminary, subject to revision