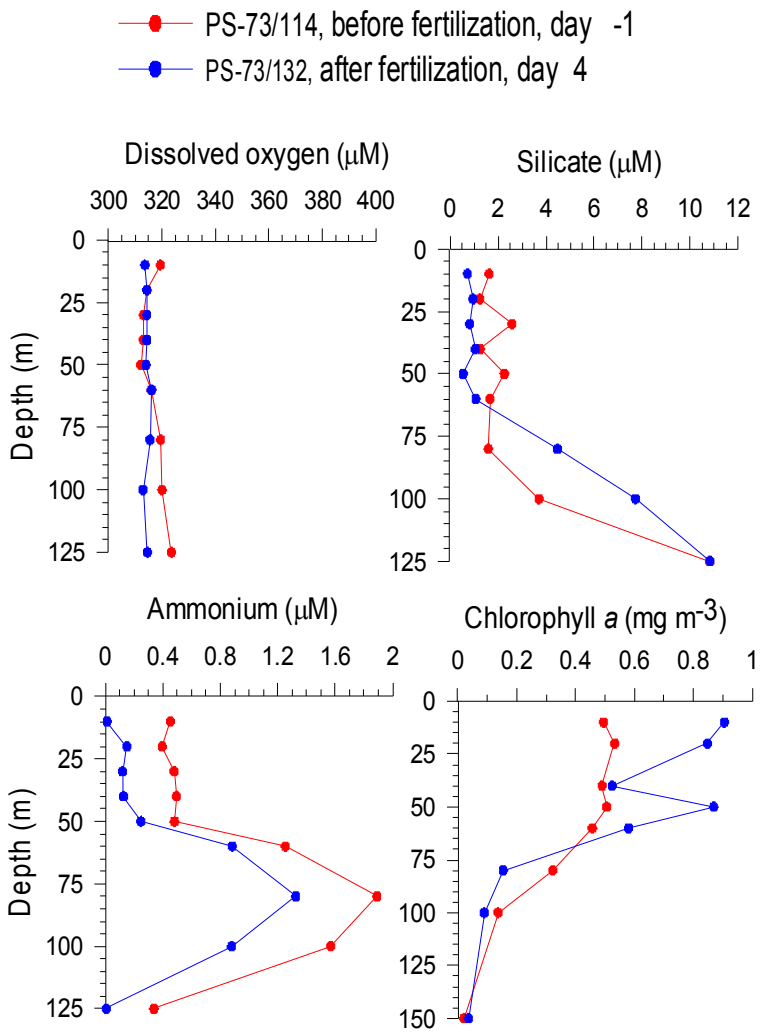
Data report from the first week of the experiment

25.01. – 02.02.2009

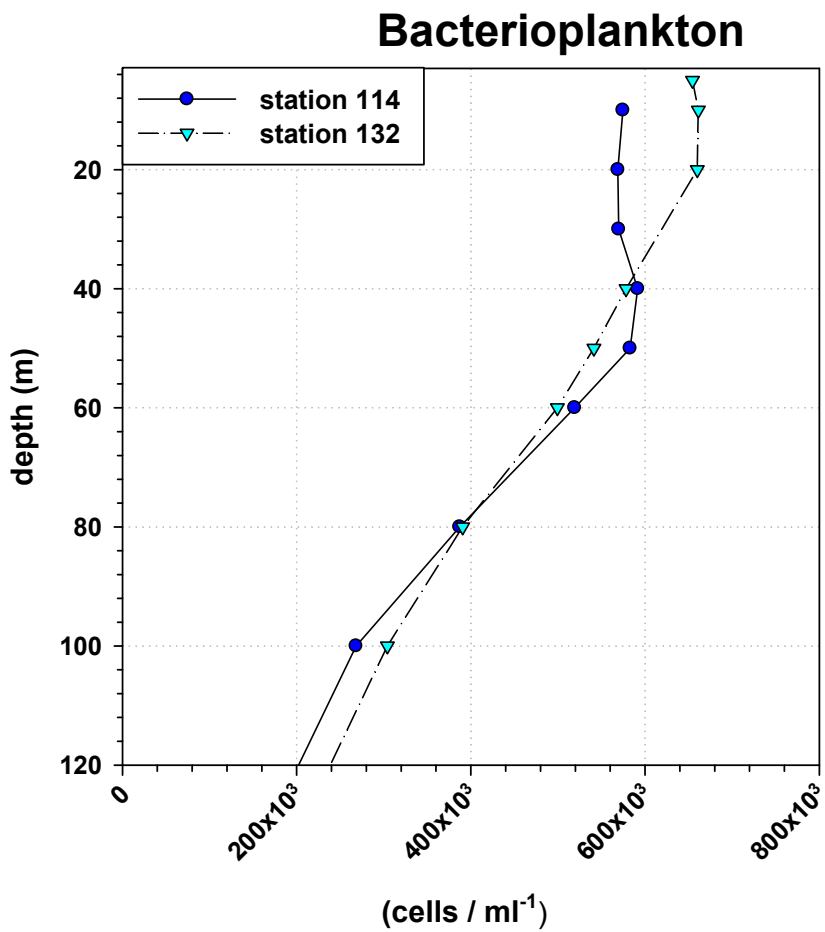
Fertilization of a 300 km2 patch with 10 tonnes of FeSO4 was completed on 28th January. Selected data presented here exhibit changes in the first 4 days. As expected, Fv/Fm ratios (a measure of photosynthetic effiiciency) increased from 0.3 to over 0.4 with peak values around 0.5 in the patch, indicating a response of most, if not all, groups of phytoplankton represented in the patch. Diatoms responded immediately as reflected in declining Si concentrations to very low levels. Further increase in phytoplankton biomass is expected to be due to other groups (haptophytes and dinoflagellates).

Bacterial cell numbers are expected to increase in the coming weeks with shifts in the species composition.

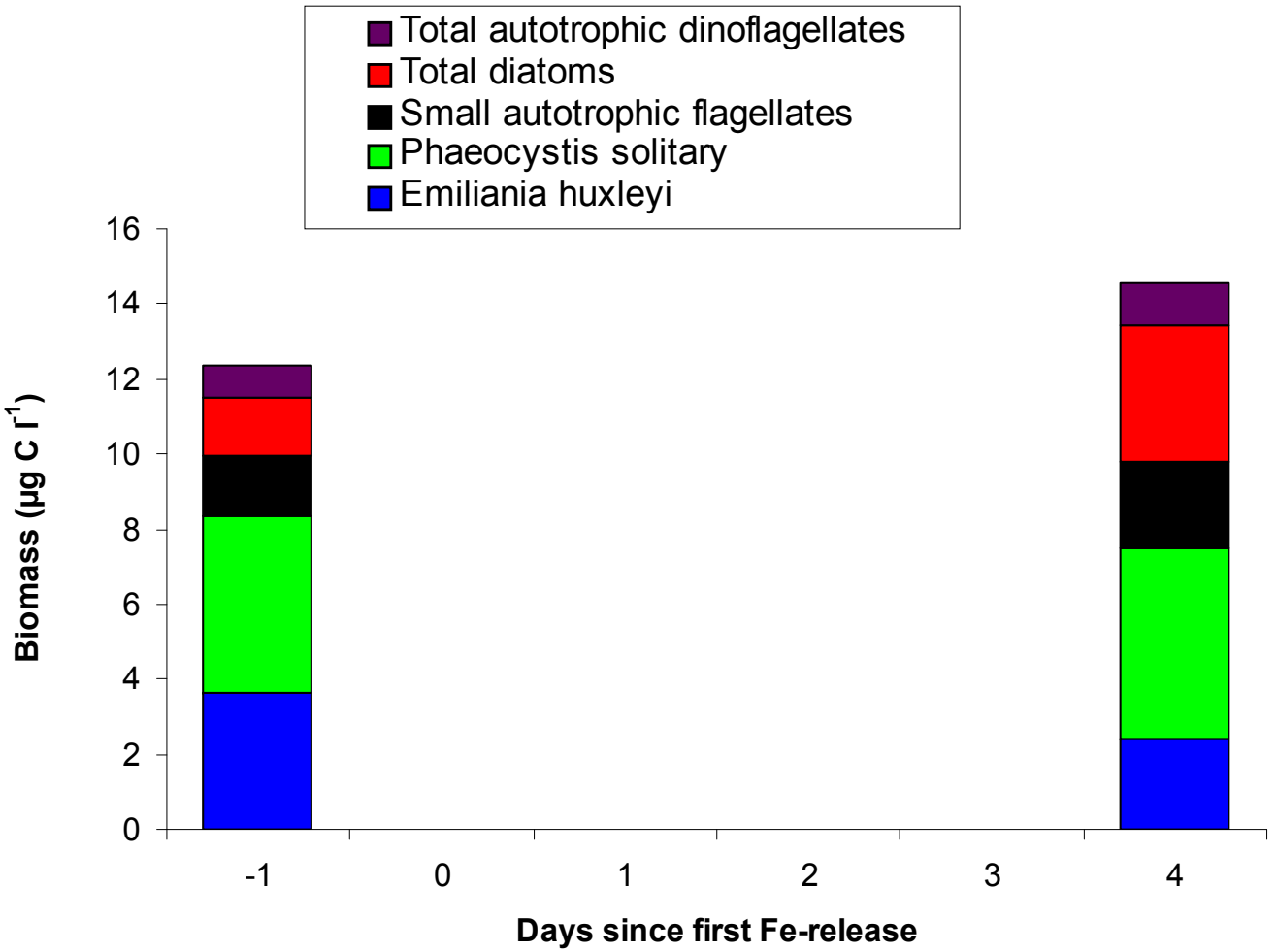
Zooplankton is not expected to respond as rapidly as the unicellular plankton.



Changes in oxygen, nutrients silicic acid, ammonium and chlorophyll before and 4 days after fertilization. Change in oxygen is insignificant but the slight changes in Si and ammonium are probably significant and due to increase in diatom growth, reflected in the significant increase in chlorophyll.



Bacterial cell numbers have increased slightly in the surface layer following fertilization which could be due to increase in growth rates if bacteria are also iron limited.



Phytoplankton biomass in 20 m depth one day prior to and four days after iron fertilization estimated from conversion of cell counts under the microscope to biomass.The increase in diatoms is significant but expected to stop as Si has reached limiting levels. Which other groups will increase biomass is uncertain.