

## Master Thesis in Geobiology – Macrobiology & Geobiology

Title: Impacts of CO<sub>2</sub> seepage from capture capture and storage reservoirs on benthic diversity and ecosystem processes?

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### What?

As you all know, CO<sub>2</sub> levels in our atmosphere are increasing and this potentially changes the Earth's climate. An alternative to emit the CO<sub>2</sub> into the atmosphere is to store it below the seafloor in a process termed carbon capture and storage. This is currently being done below the Sleipner platform in the North Sea. We at the Centre for Geobiology (CGB) are currently involved in three projects focussing on this sub-seafloor storage of CO<sub>2</sub>.

In an EU-funded project (EU-RISCS) we will be focussing on possible consequences for the marine environment if a CO<sub>2</sub> leakage occurs from a storage site. As the responses of ecosystems to elevated CO<sub>2</sub> concentrations is poorly understood, researchers at CGB are now starting up studies focusing on the effects of elevated CO<sub>2</sub> in marine fauna and ecosystem processes in seafloor sediments. In our experiments, we will use a state-of-the-art benthic chamber lander to expose seafloor ecosystems to elevated CO<sub>2</sub>. We will then recover the sediment and assess changes in macrobenthic diversity as well as quantify the impacts of CO<sub>2</sub> seepage on specific ecosystem processes such as sediment oxygen consumption (respiration) and nutrient fluxes.

The study is multidisciplinary, focussing both on the microbiology, macrobiology and biogeochemistry aspects.



**Who?**

We hereby invite master students with interest in macrobiology & biogeochemistry to join the project from the very beginning! You have the possibility to join from the time of sampling out at sea, or at the start-up in the lab!

**When?**

The benthic chamber lander experiments will be carried out in a deep sea fjord at 600m depth during the summer

**Fieldwork in 2011:**

Opportunity to join the 10 days cruise with the lander in the summer.

Opportunity to join the 12 days “Nordic field course in Geobiology” held in Iceland in August 2011 (5 ETCS). The course includes lectures, field trips and practical exercises to introduce field and laboratory techniques used in microbiology, molecular ecology, biogeochemistry and geology. A great place to start!

Please find info at [www.uib.no/geobio](http://www.uib.no/geobio)

**Lab work in 2011-2012:**

- 1) Identifying fauna from CO<sub>2</sub> exposed and unexposed chambers to assess changes in diversity as a function of exposure.
- 2) Measuring nutrient concentrations from samples collected by the lander and calculate nutrient flux rates to quantify changes in important ecosystem parameters.
- 3) Quantify seafloor respiration by processing O<sub>2</sub> concentration and CO<sub>2</sub> data collected by onboard sensors.

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