



Research Division: Biosciences

The Section Benthic-Pelagic Processes offers the theme

"The cold-water coral *Caryophyllia huinayensis* from the Chilean Fjord Region: Aspects of coral metabolism in a changing environment"

for a

Master thesis (Biology/Zoology)

Rationale

Scleractinian corals are important habitat forming organisms. Their characteristic growth creates three-dimensional structures that provide shelter, settlement substrate and habitat to a diversity of organisms. This also holds true for cold-water corals, but our current knowledge is very limited. Despite scleractinian corals building on so-called 'biodiversity hot spots', the ongoing effects of climate change remain uncertain and future prognosis is negative. Recently, *Caryophyllia huinayensis* (Cairns et al., 2005) was described from superficial waters of southern Chilean fjords (48°-55°S). This coral is characterised by a small corallite (20mm in length) and a pinkish to red orange polyp. *C. huinayensis* inhabits vertical walls and rock faces of overhangs and caves, which dominate the Patagonian fjord system. Locally this stony coral can reach high abundances and is often associated with the larger scleractinian coral *Desmophyllum dianthus*. As calcifying organism *C. huinayensis* is vulnerable to climate change. Current trends of ocean acidification due to CO₂ accumulation rates 100 times higher than in glacial to interglacial periods may strongly affect subpolar regions. Cold-water corals are thought to be sensitive to this ongoing climate change and significant community modifications are expected. However, no basic data on the metabolism of these cold-water corals exists yet.

Objectives

- Determination of the coral's abundance in relation to the angle of its substratum.
- Quantification of basic eco-physiological parameters of the scleractinian coral *C. huinayensis* such as respiration, and trophic interactions with the surrounding water mass (total carbon intake, total excretion and nitrification footprint).

Tasks

- *In situ* photo documentation followed by picture analyses (Expedition 27.02.13-28.03.2013)
- Sampling of specimens (15-21m depth)
- Conduction of *in vitro*-respiration experiments using cold-water aquarium facilities
- Conduction of *in vitro*-feeding experiments

If you are interested or if you have any further questions, please contact asap:

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