

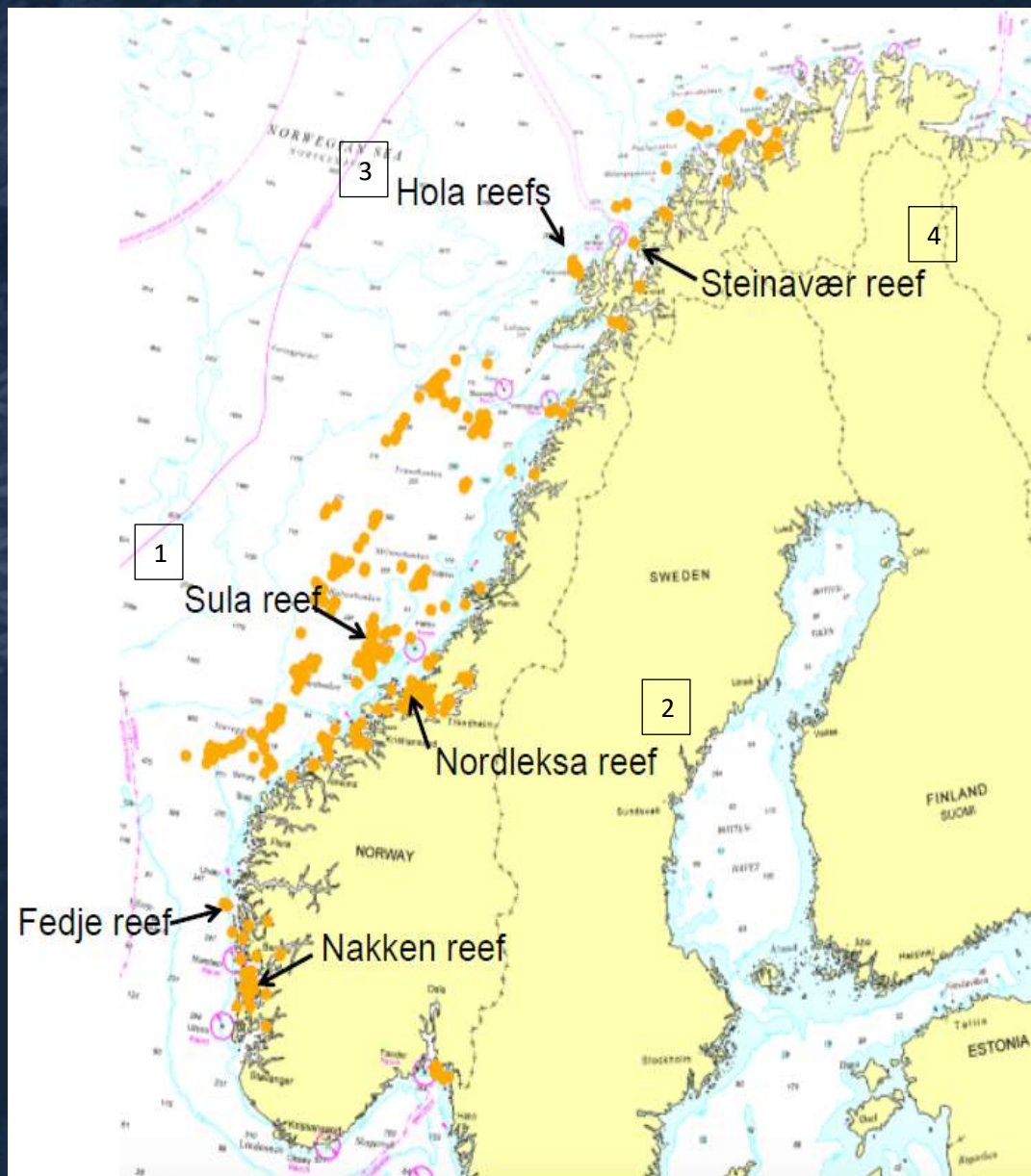
POS525 Expedition



Cold-water corals



Research area



➤ 4 Locations / Reefs

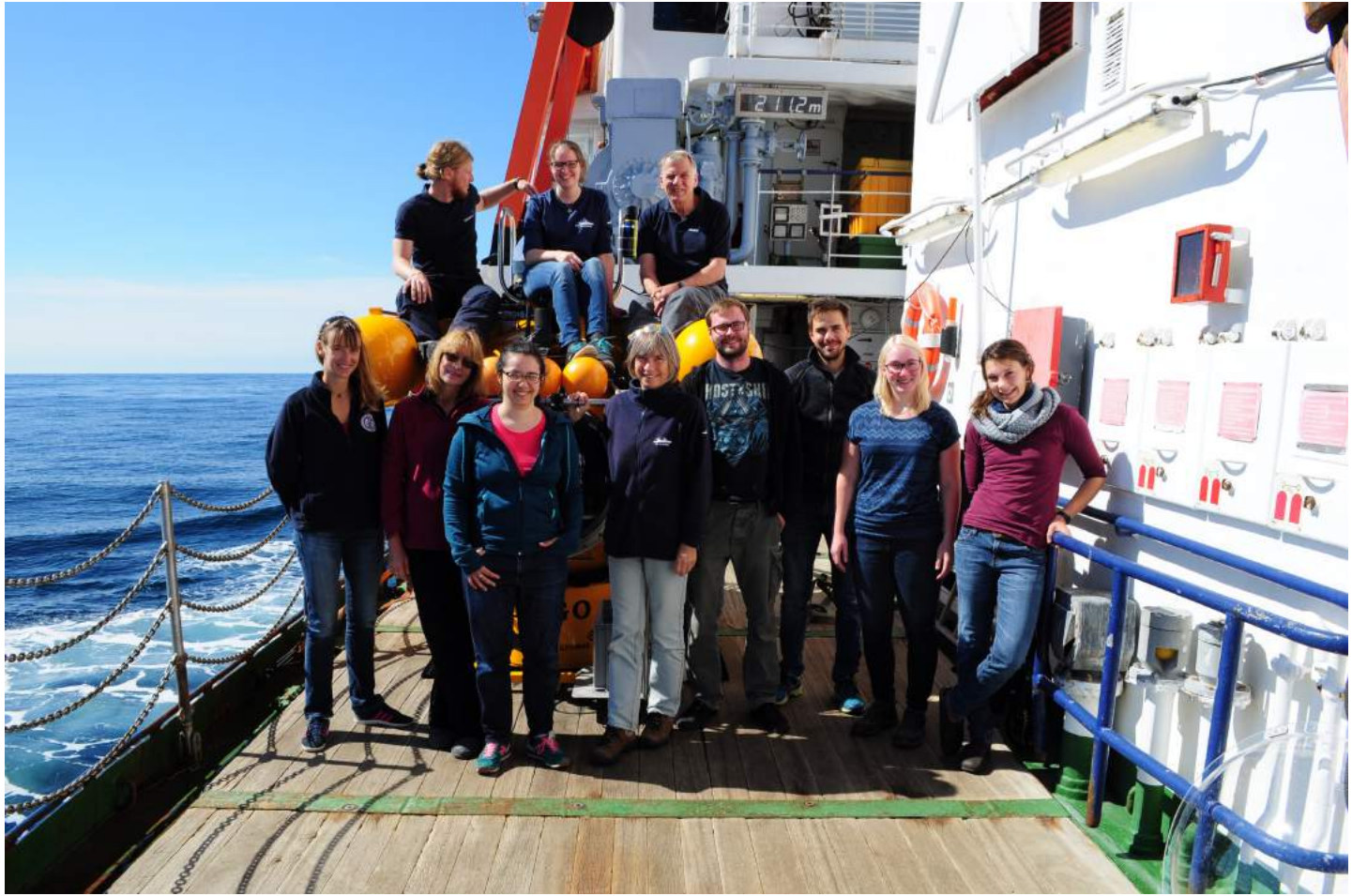
→ Mid-Norway vs. North Norway

→ 2 Offshore, 2 Inshore

➤ Physiological state of different cold-water coral reef populations

→ assess natural variability of physiological processes (i.e. metabolism, growth, reproduction)

→ comparison with data from laboratory experiments





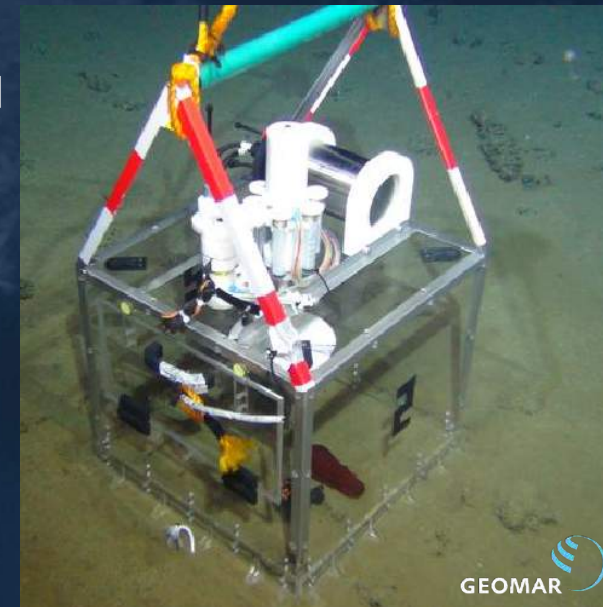
Research activities



Sandra Maier



- Community oxygen consumption rates – *in situ*
 - CUBE-Systems in cooperation with NIOZ (Sandra Maier and Dick van Oevelen)
 - Metabolic rates, carbon and nitrogen fluxes for 24h *in situ*
 - 2 CUBEs at the same time: one with coral colony, one only sediment; coral and sediment sampling
 - additional sampling of plankton, bacteria & viruses
 - Isotope injection studies
- Oxygen level within reef structure over time (optode stick)





Research activities



In situ growth studies

➤ Growth and bioerosion measurements – *in situ*

→ in cooperation with Senckenberg am Meer, Wilhelmshaven (Max Wisshak)

- Deployment of baskets with labelled living coral branches and dead coral framework

→ POS455/473 field study – 1 year deployment



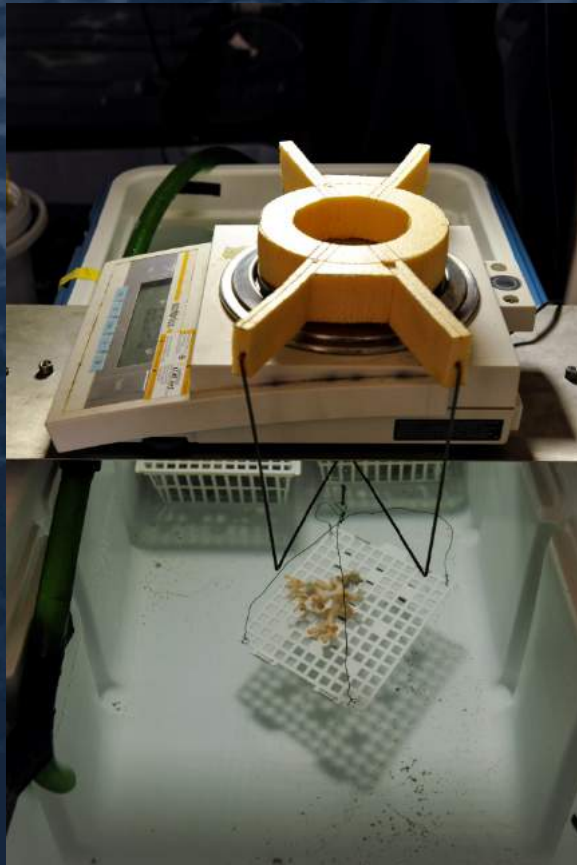


Research activities

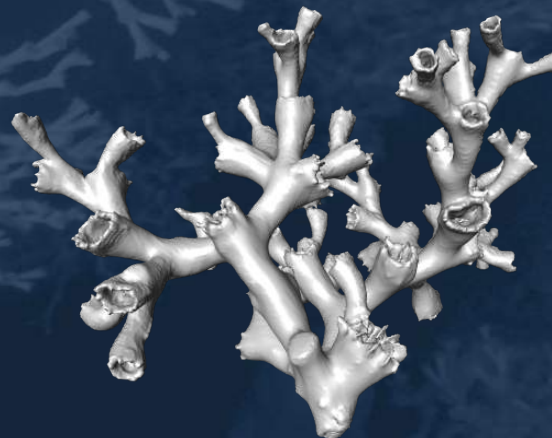


In situ growth studies

- Buoyancy weighing on board



- Alizarin R staining for growth band marks



- Computer-Tomography (CT) Scanning for surface/volume analysis



Research activities

Sandra Brooke



→ expert in field work with cold-water corals (1st in situ growth study with *L. pertusa* in Gulf of Mexico with labelled corals)

➤ Reproduction sampling

→ sample polyps from all sites for histology analyses to compare gametes between populations in summer

➤ Community analysis

→ transects over reefs with JAGO to compare communities of different populations along Norway (JAGO video documentation)





Research activities

Lipid composition & 'genotyping'



➤ Fatty acid and lipid analyses

- in cooperation with AWI (Martin Graeve)
- comparison to laboratory studies
- connection to reproduction

➤ RNA/DNA analyses

- in cooperation with Catriona Clemmesen
- comparison to laboratory studies

➤ Genetic sampling

- in cooperation with Cheryl Morrison (US Geological Survey)

indicator
for fitness
of the
corals



Research activities

FATE

Tina Kutti, Narimane Dorey, Øystein Gjelsvik



➤ On-board temperature incubation experiments

→ test whether different populations respond differently to increase in temperature

- response variables: O₂ consumption, mortality, behaviour (polyp expansion), stress markers, microbial community
- *L. pertusa*, *Avesta excavata*, *Mycale* sp.





Research activities

Magali Boussion



→ in cooperation with Le Centre Scientifique de Monaco (Christine Ferrier-Pages)

- Determination of total proteins, lipids, carbohydrates
- On-board incubation experiments for coral mucus analysis
- Mucus degradation processes
- On-board feeding experiments with labelled prey





Research activities

Nico Schleinkofer



→ Geoscientific aspects in cooperation with Jacek Raddatz (former GEOMAR)



- *Acesta excavata* & *L.pertusa* sampling for proxy calibration
 - Temperature reconstruction through Mg/Ca, $\delta^{18}\text{O}$, and clumped isotope analyses
 - pH and carbonate system parameters through Bor isotopes, B/Ca and U/Ca comparison
 - Salinity through Na/Ca
- Test seasonality on cold-water coral distribution (fjord vs. offshore reefs)
 - water sampling for DIC and stable isotopes to compare cold-water coral ecosystems
- CTD responsible (deployment and techniques/software)
 - water sampling for own analyses and carbonate chemistry, nutrients etc.



Research activities



➔ Holistic approach to capture cold-water coral ecosystems

- estimation of physiological performance in different cold-water coral ecosystems (comparison of North vs. Mid-Norwegian coral as well as inshore vs. offshore reefs)
- assess several parameters through coral and water sampling as well as associated fauna
 - net growth
 - community respiration and
 - individual respiration (+ temperature experiment)
 - lipid and FA composition
 - protein content
 - carbohydrates
 - reproduction
 - mucus composition and degradation
 - genetics

} energetic state



Outreach activities



- Ocean Mind Foundation Kiel
 - Project “Küstenkinder”
 - 3D / 360° Film production (Virtual Reality glasses, Media Dome i.e. in Kiel)
 - Kieler Cinemare

OCEAN MIND F. Verein für Meer Bewusst

POS525 – KALTWASSER NORWEGEN BLOG

15.06.2018

HELLO WORLD!

Welcome to Oceanblog start blogging!

1 Comment

EXPEDITION

Vom 17. Februar bis 1. März unternahm ein internationaler Team mit dem Forschungsschiff POS525 und dem Tauchboot JAGO vor der Küste Norwegens im Nordatlantischen Ozean ein Tauchprogramm mit dem Ziel, die Tiefseebiodiversität in der Region zu erforschen. Die Expedition wurde von der Universität Kiel geleitet und wurde von der Leibniz Universität Hannover unterstützt. Die Expedition wurde von der Leibniz Universität Hannover unterstützt. Die Expedition wurde von der Leibniz Universität Hannover unterstützt.

21.02.2018 POS525 Fahrt um die Kapverden

27.02.2018 Auf Spurensuche in offenen Ozean

28.02.2018 Mein Tauchgang in das unendliche Blau

01.03.2018 Spannende Entdeckungen

29.02.2018 Mit Tauchboot JAGO im Professor unterwegs