Project information

Keywords
ocean acidification, Acartia, mortality, DNA damage, DNA repair

Project title
The effect of OA on DNA damage and repair in arctic copepods, WP2-task 1

Year
2018

Project leader
Claudia Halsband

Geographical localization of the research project in decimal degrees (max 5 per project, ex. 70,662°N and 23,707°E)
69.6714598 N, 18.7879219 E

Participants

Helena Reinardy (UNIS), Pierre de Wit (U Gothenburg, SE), Iris Hendriks (IMEDEA, ES)

Flagship
Ocean Acidification

Funding Source

Fram Centre OA flagship

Summary of Results

Zooplankton was collected near Håkøybotn/Tromsø and adult female Acartia longiremis sorted for experimental exposure to pH 7.1 for 4 weeks, in addition to controls at ambient pH (8.1). Experiments were run in a total of 24 0.5L Schott bottles attached to a plankton wheel rotating in seawater at ambient temperature (approx. 8 degrees C). The copepods (20 ind. per bottle) were fed cultured Rhodomonas sp. and mortality was checked weekly. Individual copepods were removed consecutively from the experiments and preserved in RNA later for later analysis of potential DNA damage over time. Faecal pellet production was also recorded in a semi-quantitative fashion. The data (pH monitoring, mortality, faecal pellet production) are currently being processed, to be continued in year 2, and followed by a second exposure at milder pH stress (7.6) in spring/summer 2019, including reproductive success. The preserved samples will be analysed for DNA damage in 2019/20.

Master and PhD-students involved in the project

none

For the Management

DNA is vulnerable to ocean acidification-induced damage, and repair mechanisms may be induced or impacted to different extents. The susceptibility for DNA damage and capacity for repair in important Arctic copepods is unknown, but important to predict impacts of future ocean changes on Arctic ecosystems. Consequently, this study aims to further develop these understudied areas of OA research and understand the underlying mechanisms for species vulnerabilities and adaptabilities among arctic marine invertebrates.

Published Results/Planned Publications

This year 1 of the project and published results are not yet available.

Interdisciplinary Cooperation

experimental ecology, molecular biology

Budget in accordance to results

yes

Could results from the project be subject for any commercial utilization
No

Conclusions

Conclusions will become available in year 3.