

Project information

Keywords

cold-water corals, reproduction, ocean acidification, climate change

Project title

Determine ontogeny and physiological constraints on early life history stages of *Lophelia pertusa*.

Year

2017

Project leader

Johanna Järnegren

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

65.513 N and 10.298 E

Participants

Johanna Järnegren

Flagship

Ocean Acidification

Funding Source

Flagship Ocean Acidification

Summary of Results

The embryological development of *Lophelia pertusa* is delayed approximately 12 h when exposed to $p\text{CO}_2$ of 1000 ppm. It is not affected at $p\text{CO}_2$ 600 ppm. The speed of the embryological development is increased at higher temperatures, although at 16°C the larvae dies after 80 h while they develop well at 12°C. The embryological development is delayed at 4°C and abnormality increased, but the embryos will continue to develop if returned to warmer water.

A combination of high temperature (12°C) and high at $p\text{CO}_2$ (1000 ppm) showed that it appears that temperature evens out the delayed development caused by higher $p\text{CO}_2$ and the embryos develop at normal speed.

Published Results/Planned Publications

Planned publication: Effects of ocean acidification and climate change on the embryological development of the cold-water coral *Lophelia pertusa*. Spring/summer 2018

Communicated Results

Invited speaker at two seminar series in Trondheim, VitenLunsj and Barneuniversitetet (children 6-10 years old) in October 2017. Gave talks on corals and ocean acidification.

Interdisciplinary Cooperation

Participating in the NFR-financed research project FATE that is led by Tina Kutti at IMR for four years (2015-2018) aim to understand the natural variability in physical, chemical and biological processes within cold-water coral ecosystems to obtain a better understanding of their response and adaptability to ocean acidification and warming.

Budget in accordance to results

Budget had been used up (and more). A larger budget would facilitate publication.

Could results from the project be subject for any commercial utilization

No

Conclusions

The project is producing new and important knowledge on the effects of ocean acidification and climate change on the reproduction of the cold-water coral *Lophelia pertusa* as described in the project description.