Project information

Keywords
Ocean acidification; copepods; Arctic Ocean

Project title
ECOAN WP3-Population-level effects of Arctic ocean acidification on copepods PI

Year
2016

Project leader
Pedro Duarte

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

Participants

Pedro Duarte, Norwegian Polar Institute

Flagship
Ocean Acidification

Funding Source

Project Ecosystem effects of Ocean Acidification in Northern waters (ECOAN), financed by the Fram Centre

Summary of Results

The modelling approach implemented during 2014-2015 is based on structured population dynamic models (SPDM), where experimental populations are represented by different life cycle stages using a transition matrix model (Leslie 1945, 1948), or a McKendrick-von Foster type model (Otto and Day, 2007). Each stage is assumed to be composed of a homogeneous set of individuals. The transition matrix model was implemented in MatLab and it may be used for a fast evaluation of the effects of changes on population level vital rates, such as mortality and growth, on population dynamics. The McHendrick-von Foster model was implemented with EcoDynamo (Pereira et al., 2006) and it couples physiological with population dynamics processes by calculating growth rates as a function of energy budgets. Therefore, it may integrate ocean acification effects both at the physiological and the population level. Both models are prepared to use. We are now searching for data on vital rates and their random variability that will be used to generate thousands of population growth trajectories to estimate the probability of severe population changes in the future pH/salinity ranges determined from ECOAN-WP1 and WP3.

Master and PhD-students involved in the project

None

For the Management

This report corresponds to one of the sub-projects within the "large" ECOAN FRAM Centre funded project. The work reported had no budget attributed for 2016.

Published Results/Planned Publications

None

Communicated Results

None

Interdisciplinary Cooperation

This is mostly a biological project so the cooperation is between the modeler and biologits involved in experiments with the effects of ocean acidification o0r Arctic copepods.

Budget in accordance to results

No budget except for inkind from the NPI.

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

Conclusions

The tasks planned 2016 that consisted mostly on defining model parameters and respective ranges are delayed in relation to what was planned due to other work commitments.