Ecotoxicological testing of marine petrogenic emissions using laboratory-raised stocks of *Calanus finmarchicus* as model target.

Olsen, A.J.[i], Altin, D.[ii], Nordtug, T.[iii], Hansen, B.H.[iii] and Eliassen, R.A.[iv]
[i)]NTNU Department of biology, [ii)]BioTrix, [iii)]SINTEF Materials and Chemistry, [iv)]Bodø University College

There is a substantial lack of parameterized data from relevant test organisms for use in modelling the impact in the water column from offshore emissions of petrogenic hydrocarbons. To resolve this issue we have established an *ad hoc* research group with members from NTNU, Dept. of Biology, SINTEF Dept. of Materials and Chemistry, BioTrix and the Bodø University College focusing on possible long-term biological effects of petrogenic oil emissions on crustacean plankton.

At the core of the activity within the group is the NFR funded project "Long-term (chronic) effects of produced water effluents affecting reproduction in marine crustacean plankton"[1], which made it possible to establish cultures of the key copepod species in the North Atlantic Ocean; *Calanus finmarchicus*. This is, as far as we know, the first laboratory cultures of this species in Norway and probably Europe running over a substantial number of generations as the culture now is in its 4th year and 15th generation (2008).

The culture has opened the opportunity to perform controlled experiments on this species under laboratory conditions – mainly within ecotoxicology, but also applicable for a number of other physiological, ecological and adjacent disciplines. Although investigations aimed to reveal possible effects of petroleum effluents on this species *per se* are the focus, the species may serve as a model organism for other copepods in the area and in some aspects also the crustacean plankton assembly in the water column.

Long-term effects of petrogenic oil residuals are tested in flow-through systems, exposing cohorts of individuals to environmentally realistic concentrations through either selected critical parts of the life cycle of the organisms, or the entire life cycle. Due to the special requirements of the test organisms, and the nature of the experiments, most of the equipment has been tailored and custom-made by the research group to meet the specific needs.

Possible adverse effects are identified using a number of traditional endpoints as stage-specific mortality, developmental retardation and morphological deformations at predefined stages or through the complete development cycle, alterations in fat deposition, gonad maturation, and egg production and viability of offspring. The underlying mechanisms of some of the observed endpoints will be targeted with tools on the molecular level to resolve their underlying possible mode of action.

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