Succession of picophytoplankton during the spring bloom 2012 in Disko Bay (West Greenland)—an unexpectedly low abundance of green algae

Evaluating pyrene toxicity on Arctic key copepod species Calanus hyperboreus

Calanus hyperboreus is a key species in the Arctic regions because of its abundance and role in the Arctic food web. Exploitation of the off shore oil reserves along Western Greenland is expected in the near future, and it is important to evaluate the acute and chronic effects of oil emissions to the ecosystem. In this study C. hyperboreus females were exposed to concentrations of 0, 0.1, 1, 10 and 100 nM pyrene and saturated concentrations measured to ~300 nM. Daily quantification of egg and faecal pellet production showed significant decreases in the pellet production, while the egg production was unaffected. The hatching success was also unaffected, although the total reproductive output was reduced with increased pyrene concentrations. Accumulation of pyrene in the copepods was higher in feeding than starving females and only trace amounts of the phase I metabolite 1-hydroxypyrene, were found. Lowered reproductive output, reduced grazing, and reduced ability to metabolize pyrene suggest that oil contamination may constitute a risk to C. hyperboreus recruitment, energy transfer in the food web and transfer of pyrene to higher trophic levels
Olien og vandloppen - effekten af pyren på Calanus hyperboreus

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