

Project information

Project title

COPOL II - Importance of primary and secondary sources for POP-concentrations in Kongsfjorden

Year

2013/2014

Project leader

Geir Wing Gabrielsen, NPI

Participants

Project leader(s)/institutions:

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Flagship

Hazardous substances, Theme: The effect of contaminants and climate change on human health, indigenous peoples and Arctic communities

Funding Source

Fram Centre

Summary of Results

In order to investigate the importance of secondary sources more data concerning concentrations of POPs in seawater and runoff (from glaciers, rivers and land) was needed. Therefore low density polyethylene (LPDE) passive samplers were deployed in Kongsfjorden in 2012 in a gradient from the large glaciers in the fjord bottom out to the fjord mouth where the glacial signal is much more diluted. In addition high volume water samples were collected both from sea- and river water, also in a gradient out the fjord. To obtain data on levels in air near the sea surface passive air samplers were placed near the sea surface on selected stations. All sampling was carried out in 2012 by personell from Akvaplan-niva and NIVA.

In 2013 we plan to analyse the collected samples. Analyses will be carried out by NILU and NIVA. When the results are available fluxes of contaminants from glaciers and rivers to the fjord will be calculated using models established at NIVA (Teotil). Teotil requires hydrology input data and concentrations of chemical compounds. When hydrological measurements are limited, the hydrology can be calculated from precipitation and estimated snow and glacial run-off together with a digital elevation map and the concentration of chemicals.

For the Management

The Arctic climate is changing, and several reports/publications has raised concerns about how this will affect the contaminant dynamics in the Arctic environment. Long-range transport has been the most important source for contaminants that has been deposited in the Arctic environment. However, this might be changing. Snow, ice and frozen soil may contain contaminants that are being released as a result of increased melting, and these secondary sources may be important in coastal areas.

Published Results/Planned Publications

Many publications are being prepared as a result of the COPOL-project. The results from the present study will be published in a paper with working title:

Importance of primary and secondary sources for POP-concentrations in Kongsfjorden.

Communicated Results

Since the results from the chemical analyses are just ready they have not been presented yet.

Interdisciplinary Cooperation

The project is a collaboration between ecotoxicologists, chemists and modellers. The combined knowledge is essential for the success of the project.

Budget in accordance to results

The funding from the Fram Centre allowed us pursue the research question regarding the importance of primary and secondary sources for contaminants in an Arctic fjord that is influenced by climate changes.

Could results from the project be subject for any commercial utilization

No