

Steps toward implementing EA for Contaminants in the Arctic

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There are more than 100,000 commercial chemical substances on the market and new substances are constantly released. Some substances have been phased out for commercial use, but they can remain in the ecosystems for a long period after they have been banned. It is not possible to monitor, assess and evaluate such a high number of substances.

Arctic Council member states have implemented AMAPs [Trends and Effects Monitoring Programme](#) which recommends the different contaminants and matrices to be monitored in the Arctic. The results from the monitoring are used in AMAP assessments of Arctic contaminants and can be used for assessment of Arctic marine ecosystems.

Due to the ocean currents and prevailing wind directions contaminants are long-range transported from the sources at southern latitudes to the Arctic. There are few local Arctic contaminant sources, but even so the levels of contaminants in Arctic marine biota can be as high as levels closer to the sources. Highest levels of lipid soluble contaminants are found at the highest trophic levels where the species most harvested for human consumption are. The presentation will discuss in more detail how to establish and perform monitoring programmes for contaminants including how to monitor the correct contaminants and use the results to assess the status of the ecosystem. An important part of this is to set limits for human consumption taking into account the most vulnerable individuals like children and pregnant women.

AMAP's expert groups on contaminants and human health in the Arctic have produced assessments which have helped national authorities and international organizations both to assess the marine ecosystems and to agree on international regulations through e.g. the Stockholm Convention on persistent organic pollutants (POPs) and the Minamata Convention on mercury.

The Arctic environment is changing faster than most other areas on the planet. The temperature increase in the Arctic can give cascades of other changes. Some Arctic change is also independent of climate change. The ongoing AMAP assessment called "Adaptation Actions for a Changing Arctic" (AACA) assesses future Arctic change and how to adapt to the changes. Arctic change requires management to closely follow the environmental changes. Ice melting could release contaminants and make them bioavailable. In the future legacy POPs like PCBs are expected to further decrease while e.g. methyl-mercury are expected to increase in Arctic biota. Emerging Arctic contaminants like brominated flame retardants (BFRs) and perfluorinated alkylated substances (PFAS) are examples of substances that can have an effect on Arctic biota either as single substances or as components of the cocktail mixture all living organisms are exposed to.

Global pollution control to reduce discharges and emissions of contaminants are important to reduce levels of contaminants in Arctic biota.