



NORTHERN CONTAMINANTS PROGRAM

## CANADIAN ARCTIC CONTAMINANTS AND HEALTH ASSESSMENT REPORT

# HUMAN HEALTH 2009

### Introduction

Contaminants are substances which are found in places they should not be and at levels that can be harmful. The NCP focuses on two types of contaminants: persistent organic pollutants (POPs) and heavy metals like mercury.

Contaminants are found in all parts of the Arctic environment, including wildlife and people. Many of these contaminants are not created in the North, but are transported here in the atmosphere from other countries.

The Canadian Arctic Contaminants Health Assessment Report presents the results of a broad assessment by the NCP of the impacts of contaminants on human health.

Findings from this assessment show a significant decline in most contaminants in people over the last 10 years for all Canadian Arctic regions. However, there are some contaminants, like flame retardants, that are at very low levels but seem to be increasing. Continued monitoring is needed.

The overall objective of the Northern Contaminants Program (NCP) is to reduce and where possible eliminate contaminants from the Arctic environment while providing information to Northerners about contaminants in traditional/country foods. The NCP is working towards achieving this objective through world-class scientific research and monitoring that is used to influence the development and implementation of global agreements to reduce and/or eliminate the production, use, and release of contaminating substances into the environment.



## Country Foods and People

People who live off the land and sea often have a much healthier diet than people who do not. Traditional/Country foods contribute greatly to the overall quality of the diets of people living in Arctic Canada by providing proteins, vitamins, and minerals. They provide significant cultural, social, economic, spiritual, and psychological benefits. However, traditional/country foods are also the primary source of exposure to environmental contaminants for northern human populations.

Since people are at the top of the food chain in the North, some northerners who rely on traditional/country foods as a main part of their diet are being exposed to contaminants at levels of concern to health authorities.

## Epidemiology

Understanding the interactions between contaminants, nutrition and lifestyle, and their effects on health, is challenging. Research in the Arctic suggests that prenatal (i.e., babies still in their mother's womb) exposure to some contaminants (e.g., methylmercury, lead, and PCBs) has distinct effects on child brain development and could be linked to increased respiratory tract and middle ear infections.

However, new research shows the important benefits of traditional/country food nutrients to brain development. Also, fatty acids (good fats) which are found in traditional/country foods help protect against heart disease and cancer.

Research has shown the possibility that nutrients present in seafood could modify or counteract the toxicity of contaminants. Marine food diets are known to be the major source of key nutrients such as polyunsaturated fatty acids (PUFAs), iodine, and selenium.



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## Toxicology

A number of new persistent organic chemicals, including some flame retardants, have been identified as a potential concern. While environmental levels are currently low, more studies are required to assess the effects of mixtures and the toxicity of these emerging contaminants.

## Benefit/Risk Communication

The most successful health promotion strategies appear to focus on improving the availability of nutritious foods, rather than on changing habits and behaviour through negative messaging related to foods with more contaminants in them.

One program in the Inuvik region promoted alternative traditional/country food choices for pregnant women. The results of that program showed that expectant mothers chose more fish and caribou and decreased their consumption of marine mammal fat while pregnant.



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