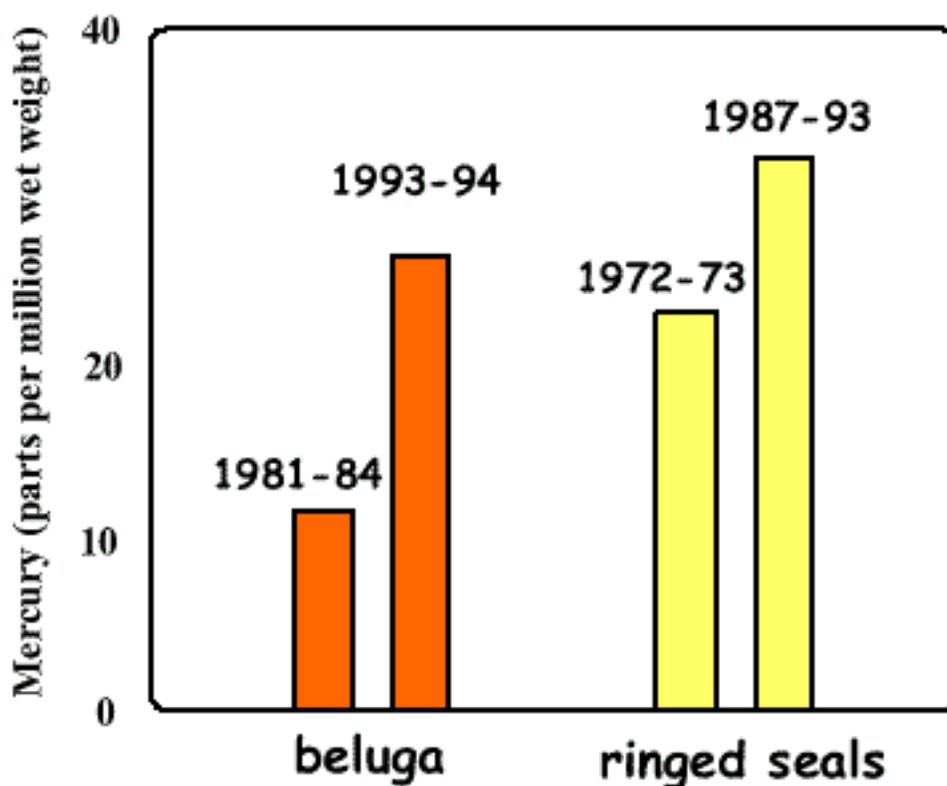


Mercury in Marine Mammals



**Data Source: Arctic Contaminants Assessment Report,
Department of Indian Affairs and Northern Development**

What is happening?

- Measurements of mercury in marine mammals have shown a significant increase between the early 1980s and 1990s in both beluga and ringed seals in the western Arctic. Other studies show a similar increase in mercury levels in seabird eggs in the North.
- The studies also showed that the concentration of mercury was higher in the western Arctic than in the eastern Arctic for both species.

Why is it happening?

- Although both natural and man-made sources of mercury enter the environment, most estimates now indicate that man-made sources contribute about 60% of the total amount of mercury to the northern atmosphere.
- The major man-made source to the environment is from the combustion of fossil -fuels, like coal, and the incineration of garbage. Scientists have found that an increase of mercury in the surface sediments of remote northern lakes correlates with increases in

fossil fuel combustion over the last 100 years.

- Mercury transports to the North through the atmosphere in the same manner as organochlorine pesticides. Some countries, like China, are increasing their combustion of coal at a rate of about 5%/year. Mercury emissions to the atmosphere in those countries are increasing at the same rate.
- Fossil fuel combustion may only be part of the reason for the increases in mercury in marine mammals. There is also evidence that natural sources of mercury are also increasing, possibly as a result of climate change in the North.

Why is it important?

- Mercury is a known toxic material and several cases of mercury poisoning in humans, caused by the consumption of mercury-contaminated fish, have been reported.
- A study of mercury exposure in the Inuvialuit communities by the Centre for Nutrition and the Environment of Indigenous Peoples (CINE) showed that mercury exposure is low in the ISR because of the variety of marine and terrestrial foods eaten. In general, mercury does not accumulate to a great extent in caribou, muskox and moose.
- There is also research to indicate that mercury from some natural foods may not be as toxic as other foods because of the presence of selenium which protects against the effects of mercury. Marine mammals are often rich in selenium.

Technical Notes

- The graph shows the levels of total mercury in liver of beluga and ringed seal taken from the Beaufort Sea area. Methylmercury, the most toxic form of the metal, makes up about 10% of the total mercury in liver. Much lower levels of total mercury are found in the muscle and skin, although the amount of methylmercury stays about the same.
- This information is from the Canadian Arctic Contaminants Assessment Report (DIAND) and a paper by R. Wagemann and co-workers ("Methylmercury and total mercury in tissues of arctic marine mammals". Science of the Total Environment 1989).
- Indicator text prepared by Colin Macdonald for the Co-op.

See also:

- Peregrine Falcons
- Organochlorines in Beluga
- Cesium in Caribou

Data originally added: n/a