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Man-made chemicals blamed as many more girls than boys are born in Arctic

- High levels can change sex of child during pregnancy
- Survey of Greenland and east Russia puts ratio at 2:1

Paul Brown in Nuuk, Greenland
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An Inuit child in a traditional parka. Photograph: Joel Sartore/Getty/National Geographic

Twice as many girls as boys are being born in some Arctic villages because of high levels of man-made chemicals in the blood of pregnant women, according to scientists from the Arctic Monitoring and Assessment Programme (Amap).

The scientists, who say the findings could explain the recent excess of girl babies across much of the northern hemisphere, are widening their investigation across the most acutely affected communities in Russia, Greenland and Canada to try to discover the size of the imbalance in Inuit communities of the far north.

In the communities of Greenland and eastern Russia monitored so far, the ratio was found to be two girls to one boy. In one village in Greenland only girls have been born.

The scientists measured the man-made chemicals in women's blood that mimic human hormones and concluded that they were capable of triggering changes in the sex of unborn children in the first three weeks of gestation. The chemicals are carried in the mother's bloodstream through the placenta to the foetus, switching hormones to create girl children.

Lars-Otto Reiersen, executive secretary for Amap, said: "We knew that the levels of man-made chemicals were accumulating in the food chain, and that seals, whales and particularly polar bears were getting a dose a million times higher than that existing in plankton, and that this could be toxic to humans who ate these higher animals. What was shocking was that they were also able to change the sex of children before birth."

The sex balance of the human race - historically a slight excess of boys over girls - has recently begun to change. A paper published in the US National Institute of

Environmental Health Sciences earlier this year said that in Japan and the US there were 250,000 boys fewer than would have been expected had the sex ratio existing in 1970 remained unchanged. The paper was unable to pin down a cause for the new excess of girls over boys.

The Arctic scientists have discovered that many of the babies born in Russia are premature and the boys are far smaller than girls. Possible links between the pollutants and high infant mortality in the first year of life is also being investigated.

Scientists believe a number of man-made chemicals used in electrical equipment from generators, televisions and computers that mimic human hormones are implicated. They are carried by winds and rivers to the Arctic where they accumulate in the food chain and in the bloodstreams of the largely meat- and fish-eating Inuit communities.

The first results of the survey were disclosed at a symposium of religious, scientific and environmental leaders in Greenland's capital, Nuuk, yesterday, organised by the Patriarch of the Orthodox Church, Bartholomew I, which is looking at the effects of environmental pollution on the Arctic.

Dr Reiersen said the accumulation of DDT, PCBs, flame-retardants and other endocrine disrupters has been known for some time and young women had been advised to avoid eating some Arctic animals to avoid excess contamination and possible damage to their unborn children.

Dr Reiersen, said blood samples from pregnant women were subsequently matched with the sex of their baby. Women with elevated levels of PCBs in their blood above two to four micrograms per litre and upwards were checked in three northern peninsula's in Russia's far east - the Kola, Taimyr and Chukotka - plus the Pechora River Basin.

To check the results the survey was widened and further communities, including those on Commodore Island, were investigated. The results were now in for 480 families and the ratio remained the same.

He said full results for the widening of the survey would not be published until next year but preliminary results for Greenland showed the same 2:1 ratio in the north.

Aqqaluk Lynge, the former chairman of the Inuit Circumpolar Conference who hails from Greenland, said: "This is a disaster, especially for some 1,500 people who make up the Inuit nations in the far north east of Russia.

"Here in the north of Greenland, in the villages near the Thule American base, only girl babies are being born to Inuit families.

"The problem is acute in the north and east of Greenland where people still have the traditional diet.

"This has become a critical question of people's survival but few governments want to talk about the problem of hormone mimickers because it means thinking about the chemicals you use.

"I think they need to be tested much more stringently before they are allowed on the market."

Backstory

The Inuit are nomadic in nature, having survived for thousands of years using formidable hunting skills to seek out the bowhead whale, seal, caribou and walrus. The Inuit Circumpolar Conference (ICC), an international body, was founded in 1977 to represent the rights of the approximately 150,000 Inuit of Alaska, Canada, Greenland, and Chukotka (Russia). With relatively low levels of educational attainment and few opportunities, violence, alcohol and drug dependency are a growing problem as the Inuit try to safeguard its traditions.

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