

Polar bears weakened by pollution as well as warmth.



April 17, 2015

Climate change causing habitat loss and reduced food is the main problem for polar bears, but plastic waste and other pollutants are growing risks.

By Tim Radford

Climate News Network

Greenland's polar bears have a thyroid problem. Their endocrine systems, too, are being disrupted. In both cases the culprit agency is environmental pollution by a range of long-lived industrial chemicals and pesticides.

Kristin Møller Gabrielsen of the Norwegian University of Science and Technology in Trondheim and colleagues report in the journal *Environmental Research* that they examined the liver, muscle and kidney tissues taken from seven polar bears killed by Inuit hunters in East Greenland in 2011 and analysed the effect of more than 50 contaminants in plasma samples from *Ursus maritimus*, to see what effect organohalogen compounds could have on the bears' thyroid systems.

All mammals have thyroid systems, and these are physiologically essential for growth, development, reproduction, stress response, tissue repair, metabolism and thermoregulation (an animal's ability to keep its body temperature within limits): disruption at any stage of life can be damaging, but thyroid regulation is vital in the earlier stages of life.

But the researchers found high concentrations of plastic pollution and pesticide contamination in the creatures' tissues, many of which could affect the hormonal systems.

Retreating ice

Polar bears face an uncertain future: the Arctic's most iconic predator depends on sea ice for access to

the most nourishing prey – seals – but thanks to global warming driven by greenhouse gases discharged by humankind since the start of the Industrial Revolution, the ice is in retreat. The bears can and do forage on land for small prey, eggs, berries and so on, but new research suggests that this is unlikely to help them much.

“The health of the Arctic polar bear is being attacked from all fronts, but among many other factors is the exposure to environmental contaminants,” said Maria Jesus Obregon, of the Biomedical Research Institute in Madrid, one of the authors.

“A wide variety of organochlorine compounds and pesticides have an effect on the thyroid hormones in plasma, tissues and deiodinase enzymes, which are in charge of stabilising the thyroid hormones in tissues.”

The biggest problem that confronts *Ursus maritimus* is still climate change, loss of habitat and a more precarious food supply. But as a marine mammal, the bear is exposed to a huge range of pollutants delivered by modern industry, transport and commerce.

Conservation guidelines

Researchers in February calculated that in 2010, around eight million tons of plastic waste ended up in the world's oceans.

A second team of researchers has framed guidelines for the conservation of the polar bear, and proposed 15 measures that could determine the factors important in saving the creature from ultimate extinction.

They report in the journal *Science of the Total Environment* that they questioned 13 specialists from four nations to propose ways of measuring polar bear health. Not surprisingly, climate change topped the list of threats, but the list also included nutritional stress, chronic physiological stress, diseases and parasites, and increasing exposure to competitors. Exposure to contaminants was the third largest threat.

“We still don't know to what extent environmental changes will affect polar bear health and therefore its conservation,” say the authors.

Tim Radford is a reporter with Climate News Network (<http://www.climate-news-network.net/>), a journalism news service delivering news and commentary about climate change for free to media outlets worldwide.

The Daily Climate is an independent, foundation-funded news service covering energy, the environment and climate change. Find us on Twitter @TheDailyClimate (<http://twitter.com/TheDailyClimate>) or email editor Brian Bienkowski at [bbienkowski \[at\] EHN.org](mailto:bbienkowski@EHN.org)

Top photo: Alex Berger/flickr ([<http://www.dailyclimate.org/tdc-newsroom/2015/04/polar-bears-weakened-by-pollution-as-well-as>](http://www.flickr.com/photos/virtualwayfarer/8185214846/in/photolist-dtincU-dthuao-dthSyy-dthmpZ-dtgxpz-dtgHXk-dtgjpC-dtgm91-dtgVHS-dtghbA-dtihUb-dtgizG-dtghbZ-dtgSQY-4zviZP-dthdEt-dtgsx9-dtiSSq-dthnLL-dtgjAz-dtgMB2-tWcK-dtgny5-dtgeq2-dtiVJp-dth7yt-dtgR7u-dtgA6z-dtj96o-dtgTMX-v2Aye-dtiWoD-dtgmUR-dtgaAR-dtiiWz-rgVz41-dtguRu-dthEBF-dtg96H-5smm5x-2eeyrQ-dthAjn-dtgopY-9hcij-qZsnvQ-ddyj6g-xe8Xq-v2xGC-dAHutF-9gECy5); Wild polar bears in Churchill</p>
</div>
<div data-bbox=)

Find more Daily Climate stories in the TDC Newsroom
(<http://www.dailyclimate.org/newsroom/>)



(<http://creativecommons.org/licenses/by-sa/4.0/>)

This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License. (<http://creativecommons.org/licenses/by-sa/4.0/>)

Based on a work at www.dailyclimate.org (<http://www.dailyclimate.org/>)

Recent DailyClimate.org coverage



(<http://www.environmentalhealthnews.org>)

28 May **Opinion: In meme-moriam.** (<http://www.environmentalhealthnews.org/t/-3001660755380200237>)

This weekend, America will pause to honor the thousands of men and women who fought and died to preserve ExxonMobil's First Amendment rights, and protect it from the tyranny of justice. Or at least that's the way a lot of Congressional leaders and climate deniers are playing it.

29 April **Michigan getting sick over climate change.**

(<http://www.environmentalhealthnews.org/t/-8878616388554073634>) Talk to folks in Michigan this time of year, and a little bump up in the thermometer doesn't sound half bad. But disease-carrying bugs, pollen-induced asthma and soupy, algae-filled lakes that might make us sick? Eh, no thanks.

28 April **Video portraits of a changing planet, from North Carolina.**

(<http://www.environmentalhealthnews.org/t/-8878616388554075257>) A UNC video series shows ordinary people reacting as climate change reshapes the world around them.

20 April **Essay: Tracking a hummingbird's arrival, for fun and science.**

(<http://www.environmentalhealthnews.org/t/-8654598417117850501>) As climate change threatens hummingbird habitat ranges scientists are reaching out to birders to help track the birds' habits and health.

25 March **Opinion: A climate skeptic calls for a carbon tax.**

(<http://www.environmentalhealthnews.org/t/-5339690284056941191>) As tax day approaches, one climate skeptic explains how a carbon tax could really benefit the economy.

8 March **Gary Braasch: Omnivorous chronicler of our changing planet.**

(<http://www.environmentalhealthnews.org/t/5497482671713805089>) We lost an strong, eclectic voice with the death this week of environmental photojournalist Gary Braasch.

2 March **Crappy climate news: More heat means more diarrhea.**

(<http://www.environmentalhealthnews.org/t/-633648703360785532>) Diarrhea diseases account for 1.7 billion cases and 760,000 childhood deaths every year. Those numbers are going up.

20 February **Opinion: Donald & Ted's excellent climate adventure.**

(<http://www.environmentalhealthnews.org/t/-3609697215988302010>) Back when he was a mere Reality TV star, Donald Trump published a less-than-140-character dissertation on climate change. "The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive." That tweet from Election Day, 2012, drew 40,000 retweets or likes.