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Press Release

Widespread feminisation of male wildlife raises the alarm.

A report released today by CHEM Trust shows that male fish, amphibians, reptiles, birds and mammals have been harmed by chemicals in the environment. Widespread feminisation of male vertebrate wildlife is highlighted. These findings add to mounting worries about the role of hormone-disrupting or so-called 'gender-bending' chemicals in the environment, and the implications for human health.

In mammals, genital disruption in males has been widely reported, including: intersex features (such as egg tissue in the testes of the male); small phallus; small testes; undescended testes; abnormal testes; or ambiguous genitals.

In the UK, effects on otters and seals are generating concern. A UK study of road-kill otters published last year noted that otters with higher levels of organochlorine contaminants had shorter baculums (penis bones),¹ and this year more otters than ever previously reported have been found with un-descended testes.² Furthermore seal populations have not increased again since they were decimated by the outbreak of phocine distemper virus in 2002. The reduced number of seals in the North Sea off eastern England is puzzling scientists, who are now planning to examine their reproductive health.³

Species across the globe have been damaged, including polar bears in the Arctic and eland antelopes in Africa.⁴

The males of egg-laying species including fish, amphibians, birds, and reptiles have also been feminised by exposure to sex hormone disrupting chemicals and have been found to be abnormally making egg yolk protein, normally made by females. Affected species are widespread, and include, flounder in UK estuaries, cod in the North Sea, cane toads in Florida, peregrine falcons in Spain, and turtles from the Great Lakes in North America.

Gwynne Lyons, author of the report and director of CHEM Trust commented,

“Urgent action is needed to control gender bending chemicals, and more resources are needed for monitoring wildlife. Man-made chemicals are clearly damaging the basic male tool-kit. If wildlife populations crash, it will be too late. Unless enough males contribute to the next generation, there is a real threat to animal populations in the long term.

It has now been shown, beyond doubt, that several 'gender benders' can act together as a mixture or cocktail to cause effects even when individually each chemical is below the concentration at which it would cause harm on its own. EU regulators must ensure legislation takes this real-world 'mixture effect' into account or reproduction will be put in jeopardy. Sadly, during negotiations of the forthcoming EU pesticides Regulation, the UK Government was one of just 3 Member States⁵ not to back the proposed tough controls to cut-off the use of hormone disrupting pesticides.

There are various ways that man-made hormone disrupting chemicals can undermine the sexual health of male wildlife. For example, chemicals which block the male hormone androgen, the so-called anti-androgenic chemicals, can cause un-descended testes and can feminise males. Similarly, some sex hormone disrupting chemicals can mimic oestrogen, the female hormone, and also feminise males.

Many man-made chemicals can block androgen action, and these include several pesticides and some phthalates, used in consumer products to make plastics flexible. Worryingly, a study of effluents from UK sewage works has found that around three quarters of these discharges have considerable anti-androgenic activity,⁶ and investigations are underway to identify the chemicals to blame.

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Notes for Editors:

¹ Simpson, V.R. (2007) Health status of otters in Southern and South-West England 1996-2003. Science Report SC010064/SRI, ISBN: 978-1-84432-7157, Environment Agency, Bristol. (online) http://publications.environment-agency.gov.uk/pdf/SCHO0307BMKL-e-e.pdf?lang=_e

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³ Britain holds 40% of the total European harbour seal population, and the numbers of harbour seals in eastern England have not increased since the end of the 2002 phocine distemper epidemic. Indeed, apart from around the Inner Hebrides, there is evidence of a general decline in large harbour seal colonies around Britain.

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⁴ Table 1: Effects [Y] reported in wildlife which are known or suggested to be linked to chemical contaminants

		Reduced reproduction	Intersex / Abnormal Testes	Deformities of sex linked structure / reduced phallus/ baculum	VTG in male	Other Sex linked effect
FISH	Fish	Y	Y	Y	Y	
AMPHIBIAN	Frogs/Toads	Y	Y		Y	Reduced no. of nuptial pads in males
REPTILE	Alligator	Y	Y	Y		
	Turtle	Y	Y	Y	Y	
BIRDS	BIRDS	Y	Y		Y	Egg shell thinning
MAMMALS	Rodent	Y	Y			
	Otter	Y	Y	Y		
	Mink	Y		Y		
	Seal or Sea Lion	Y				
	Whales Cetaceans	Y	Y			
	Polar Bears	Y	Y	Y		
	Black/Brown Bears		Y			
	Panther	Y	Y			
	Deer	Y	Y			Deformed antlers in males
	Eland		Y			

⁵ The others were Ireland and Romania

⁶ Johnson, I., Hetheridge, M., Tyler, C.R. (2007) Assessment of the anti oestrogenic and anti androgenic activities of final effluents from sewage treatment works. Environment Agency, SC020118/SR, EA, Bristol.
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CHEM (Chemicals, Health and Environment Monitoring) Trust was set up in 2007, with a mission to protect humans and wildlife from harmful chemicals.

The report ***“Effects of Pollutants on the Reproductive Health of Male Vertebrate Wildlife – Males Under Threat”*** is available on www.chemtrust.org.uk as from 8am 7th December.

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