

Chapter 12

Environmental Implications of WF and other Fluoride Sources.

The health and safety data on 'hydrofluorosilicic acid,' the chemical that is used for fluoridating water supplies, clearly states, that, it must not be put into the environment e.g. on the land, into streams, or into the air. But, when this same chemical is diluted into water supplies, this is exactly where it ends up, one way or another, for only a small amount of water is used for cooking and drinking, and cleaning teeth, the rest is used for washing – washing clothes, washing the car, watering the garden, and a huge amount is used by industry. In the end, all of this toxic waste, hydrofluorosilicic acid, which contains fluoride, ends up in the environment. Many court cases have been fought on environmental issues, as this 'waste' has contaminated the air, soil, lakes and rivers. When it ends up in rivers, fish die, as well as animals and people drinking the water. When it lands on roads, the road surface is destroyed. When its in the air, the surrounding vegetation is damaged as well as all life. Some of the accidents involving contamination, have been mentioned at the end of this chapter, and more are in chapter 16.

To counteract erosion to pipe work and equipment due to chemical fluoridation, and to prevent lead leaching out of lead pipes and solder, Water Companies add phosphate as orthophosphate to the water supply. (see glossary). Unfortunately, phosphates trap the minerals calcium and magnesium which are needed for good bones and teeth and this extra phosphate must end up at our taps at some point. Phosphate is also in the fertilizers put on the soil by farmers and it is also added to many processed foods to extend shelf life, which must unbalance the environment and eco-system. Because of the major environmental impacts of agricultural phosphorus use—and the hazardous chemical gas emitted from the manufacturing process—at least 11 states in the USA have banned phosphorus fertilizer use or sale, including Illinois, Maine, Maryland, Michigan, Minnesota, New Jersey, New York, Vermont, Virginia, Washington, and Wisconsin. (1)

Animals affected by water fluoridation

Three examples of the affects on animals are shown below:

The first example of WF's harm to animals is fully detailed by Cathy Justus, a horse breeder, in an article, 'Cathy's Horses Deformed and Disabled by Fluoridated Water'. Cathy Justus had been raising expensive Quarter Horse for many years when the family moved to Pagosa Springs, Colorado from California where the horses at first seemed fine but after about seven years they began to suffer health problems which, despite whatever was tried, would not go away. These symptoms included: colic, stiffness in the bones, skeletal, skin and reproductive problems, and her horses began to die. Cathy finally discovered that the water in Pagosa Springs was fluoridated while their home in California had been non- fluoridated. When her fifth horse sadly died, Cathy contacted Dr Lennart Krook, D.V.M., Ph.D., Emeritus Professor of pathology at Cornell University in Ithaca, NY, who had published many works in peer-reviewed journals on the toxicity of fluoride in cows, sheep and other livestock.

Cathy sent off a leg bone from one of her deceased horses to Dr Krook for testing at Cornell University. The test concluded that the horse had died of fluoride toxicity, so ending Cathy's long search for the truth.

In July 2006 Cathy addressed a fluoride conference in New York and said,
"People and animals do die and the true cause and reason for those deaths is (sometimes) unknown. Fluoridation is now in its sixtieth year. Chronic illnesses like cancer, Alzheimer's, thyroid problems and arthritis have grown in leaps and bounds since fluoridation started. Could there be a connection? From my experience in the last fifteen years --- without a doubt." (2)

The second example of WF's harm to animals is about a poodle named Joshua. His owner, Sheila Cracknell lived in Bedford, in the UK, a fluoridated town at that time. Sheila wrote in, 2005, to the author, the following account,

"Joshua is white coated with a mainly pink skin. From the time I had him and gave him tap-water he resisted it so I tended to add milk. His skin would regularly turn a deep pink for no obvious reason. The vet prescribed medication to cope with the problem. When I went away on holiday, Joshua stayed with my sister in Cambridge and his skin problem was not so noticeable at such times. I was just interested in this!"

"Life continued. I would buy him HiLife Daily Dental Chews (Original) which the dog enjoyed. A NEW RECIPE was brought out. The label stated WITH FLUORIDE. To my surprise Joshua wouldn't eat them. It then clicked!!"

"I had read about the high fluoride content in Bedford water so I wrote to Anglian Water asking if there was a difference between water supplied to Bedford residents compared to that supplied to Cambridge residents. The reply was "Yes". I was advised to use bottled water (for my pet) then my vet added "R/O filtered tap water". This I have done for at least two years and (Joshua's) skin problem has improved." (3)

The magazine 'Dogs Naturally', and reporter Julie Henriques, advises against giving dogs fluoridated tap water or processed dog food that will contain fluoride and refers to studies in the PubMed database that support this advice. (4)

The final example of harm comes from Canada where 'Agriculture Canada' (1976) found that 25 out of 36 cattle located on several (fluoridated) Cornwall Islands farms in the Saint Regis, Quebec region displayed real or potential symptoms of chronic fluorosis. A subsequent study of livestock in this region reported stiffness and inflamed leg joints, dental fluorosis, arteriosclerosis, osteonecrosis and bone deformation.

Fluoride in rivers

Fluoride lost through leaks from water pipes disappears out of sight and is not seen to be an immediate concern unless it eventually gets into streams and rivers.

Fluoride in rivers is killing fish and the smaller life that they feed upon. It has been documented that salmon will not go upstream to spawn if there is 0.2 ppm of fluoride in the water and their food source dies. Freshwater life has been shown to be adversely challenged by fluoride. (5)

Fluoride at 1 ppm in a water supply harms alligators, chinchillas, rats and horses. (6)

Fluoride is corrosive to metal work and parts of Europe and North America routinely dose drinking water supplies with a form of phosphorus known as phosphate. Information from Water Companies state that, the phosphate reacts with any lead, copper, calcium or magnesium to form a coating on the inside of pipes, and this coating inhibits corrosion and reduces lead and copper levels. And at the same time, the information states, that phosphate de-scales calcium and magnesium deposits, resulting in a clean piping system. It is strange that phosphate can do two things; form a coating inside pipes and also strip the pipes clean. An educated guess would suggest that when this 'cleaning and clearing' takes place the resulting slug would enter rivers and household taps.

Water leakages amount to 40 litres of water per customer per day and that means 1,200 tons of phosphorus as phosphate, is lost to the environment every year. This adds to the amount already leaching into rivers from farmers adding phosphate fertilizer to soil. Phosphate presence has a significant impact on the ecosystem and can damage the health of rivers and lakes by allowing unusual quantities of algae to grow. When the algae dies the process of decomposition removes oxygen from the water leading to deaths of other water life including fish. (7)

Researchers from several institutions in India, Nigeria and Italy undertook an experiment with snails. In a 30-day experiment they exposing the freshwater snail, *Bellamya bengalensis*, to 0.27mg or 54mg per litre of fluoride and found that the exposed snails produced less protein in their hepatopancreas (digestive gland) and had a reduced blood cell count.

The authors, concluded:

"The potential for loss of co-ordination, respiratory distress and physiological disruption in organisms exposed to environmentally relevant concentrations of fluoride was demonstrated by this study."

"The estimation and magnitude of toxicity responses are necessary for a more accurate estimation of ecological risks to molluscan taxa and invertebrate populations under acute and chronic fluoride exposures in the wild."

This experiment above, was reported in the, 'Environmental Toxicology and Pharmacology' magazine. (8)

The freshwater snail *Lymnaea stagnalis*, suffers a long-lasting impairment of its memory after being exposed to a moderate level of fluoride in its water, concluded scientists, from the University of Calgary. They examined a type of snail memory called, configural learning, a response to two or more stimuli based on their combination and said,

“We first showed suppressive effects of black tea and fluoride on feeding (i.e. rasping) behaviour. We then investigated how fluoride may alter cognition by introducing fluoride (1.86 mg/L) before, during, after, a day before and a week before the snails underwent the configural learning training procedure. Our results show that any 45-min exposure to fluoride (before, during or after a configural learning training procedure) blocks configural learning memory formation in Lymnaea, and these effects are long-lasting. One week after a fluoride exposure, snails are still unable to form a configural learning memory and this result is upheld when the snails are exposed to a lower concentration of fluoride, one which is naturally occurring in ponds that a wild strain of Lymnaea can be found (0.3mg/L).”

The above research was reported in the ‘Journal of Comparative Physiology A’ . (9)

In 1995, in Canada, the CEPA identified the, now closed, Brunswick Mining and Smelting Fertiliser Plant in Belledune, NB, as having had the largest discharge of fluoride into the aquatic environment. Toxicity to marine bacteria and impaired reproduction effects were demonstrated.

Fluoride in soil and plants

Some soils are ‘naturally’ high in fluoride but our fields are also over-fluoridated from repeated use of phosphate fertilizer containing fluoride. An initial analysis by the Fluoride Analysis Database Service in June 2017, of a 10 g sample of Growmore found 4.7 ppm fluoride. The fluorapatite ore used to create phosphate fertiliser contains fluoride and some of this fluoride remains in the phosphate fertiliser. Phosphate fertilizer contains 1 and 3 per cent fluoride. Once added to soil, it is converted to the neurotoxins Fluoroacetate and Fluorocitrate by plants. (10)

Through the fine hair roots of the plant, fluoride is transmitted from the soil into the stem; little reaches the leaf apart from the tea plant. Tuber plants such as potatoes, beets, radishes etc. are more susceptible to fluoride contamination. Sandy soils induce a higher fluoride uptake than clay; wet and acid soils more than dry and alkaline soils. (11)

Camellia Sinensis - the tea plant, accumulates fluoride from the water and soil, more than any other edible plant. The fluoride accumulated in the leaves of the tea plant is released into the boiled water when making a pot of tea. The stronger the tea or the longer it is brewed, the more fluoride the pot of tea will contain. This leaves tea drinkers particularly susceptible to an excess of fluoride. (12)

A Danish study, 2021, found a risk from fluoride exposure when pregnant women drink tea.

The authors suggested that many women in Scandinavia, (non-fluoridated) who often drink tea are likely to exceed the ‘Benchmark dose’ or acceptable daily intake levels for fluoride. This could damage the developing brains of their offspring even if their community water system had little fluoride in it. (13)

Fluoride in the soil may be harming millions of beneficial organisms needed for healthy plant growth. Dr George Waldbott and Dr Bruce Spittle have both recorded the damage done to plants in their books.

George Waldbott MD., FACP, qualified in Germany in 1921 and afterwards emigrated to the United States. He specialized in the research and treatment of allergies and has written several book and over 200 scientific articles. Waldbott is noted for his fundamental research on human anaphylaxis and penicillin shock, allergy-induced respiratory problems and the health impact of air pollutants. He was the first to recognize the association between tobacco smoke and chronic respiratory disease. He received many awards and was a founder of the International Society for Fluoride Research. More information about him is in chapter 14 of this book.

Bruce Spittle MD ChB with distinction DPM (Otago), Fellow of the Royal Australian and New Zealand College of Psychiatrists, has been the recipient of numerous prizes. He was co-editor 1994-1998, Managing Editor 1999-2007 of the ‘Fluoride’ Quarterly Journal of the International Society for Fluoride Research. He lives in New Zealand.

A recent study confirmed the above finding. In 2022, M. N. Ahmad et al found that fluoride pollution in soil adversely effects wheat growth and biomass production. The greenhouse study found an impairment in nutrient and trace metal accumulation in the wheat plant which led to leaf injury and powdery mildew infestation. (14)

Switzerland has a particularly high level of fluoride in the soil which, for some reason, increased significantly between 1993 and 1998. Was this because of fertilisers and/or pesticides containing fluoride? Or was it the result of sewage being spread on the soil – see section on sewage below. Is the fluoride content of soil still rising? Only the town of Basel was fluoridated at that time, so it was unlikely to be fluoridated water. There is obviously more research to be done in this area. (15)

A simple experiment, which anyone can do, has been suggested by Dr George Waldbott and Dr Graeme Munro-Hall, it is as follows:- - take two identical plants, water one with fluoridated water and the other with water containing no fluoride and watch the difference in growth.

Fluoride in Sewage

People excrete 50% of the fluoride that they ingest or absorb from toothpaste or other fluoride products, and this is either excreted via the kidneys and urine or eliminated through the bowels. This ends up in the sewage system and ultimately the watercourses as the sewage treatment does not remove fluoride. Fluoride toothpaste, along with any mouthwash that you spit down the sink, also adds to the toxic load in the sewage system.

Dr George Waldbott reported in 1978, that the fluoride content in sewage in non-fluoridated areas of the USA was 0.38 ppm F and in areas where the water was fluoridated it rose to 1.16-1.25 ppm F. (16)

Joy Warren, BSc. (Hons) Envi. Sci., lives in Coventry, UK, is coordinator of the UK Alliance Opposed to Water Fluoridation, and maintains the website, UKFFFA.org.uk, she took an analysis of river water a mile below a sewage outfall in Finham Sewage Works, Coventry, UK, on 15th March 2013 where drinking water was fluoridated at 1 ppm, and found that the effluent contained 0.5 ppm fluoride. (17)

Seven Trent Water Treatment Works, which fluoridates some areas in the UK, informed Joy Warren, some years ago, that: *“Approximately half of all fluoride ends up in sewage effluent, with the other half being found in sewage sludge, some of which is spread on fields.”* (18)

The waste from sewage and processed sludge, containing fluoride, can be applied to land for irrigation purposes, in Ireland, reported Declan Waugh, in 2012. (19)

Dr Robert Carton, former president of the US Environmental Protection Agency said, *“Fluoridation is the greatest case of scientific fraud of this century, if not of all time”.*

Accidental Spills of the Fluoridation Chemical into the Environment.

There have been many accidents where a highly toxic, liquid fluoridation chemical, has leaked at the water treatment works and spilled into the surrounding environment damaging the ecosystem. Six such spills are described below; (20)

- 1) 2000, in Coos Bay, Oregon, USA where water treatment workers allowed a tank holding fluoridation chemicals to overflow causing 400 gallons of the highly acidic additive to flow onto the floor and into a drain that led to the sewer system, causing 3.5 million gallons of partially treated sewage to spew into Coos Bay for four days
- 2) 2002, in Macomb County, Michigan, USA, homes had to be evacuated after 3,000 gallons of the fluoride chemical spilled.
- 3) 2005, in Melbourne, Australia, a ton of the fluoridation chemical, leaked from a containment tank at a water treatment plant and flowed into the nearby Cardinia Creek.
- 4) 2007, in Parleys Creek, Utah, USA, 2,000 gallons leaked from an overflowing storage/containment tank at the Mountain Dell water treatment plant into Parley's Creek, killing fish and sickening deer that drank from the creek.
- 5) 2013, in Martinsville, Virginia, USA, thousands of fish were killed and a \$16,000 fine levied, after fluoridation chemicals spilled into Jones Creek following an overflow at the plant, which caused the additive to drain into a sewage discharge pipe directly into the creek.
- 6) 2014, in Dungog, Australia, fluoridation chemicals leaked into the ecosystem surrounding the water treatment plant for 5 months, costing the community \$187,000 in fines and \$3.6 million in upgrades to the facilities.

For more information on accidents involving the fluoridation chemical see Chapter 16.

Chapter 12 References

(1) (Source: Cascade FFAUK, Newsletter March 2023) (<https://www.gov.uk/government/publications/waste-water-treatment-works-treatment-monitoring-and-compliance-limits/waste-water-treatment-works-treatment-monitoring-and-compliance-limits#population-equivalent-compliance>) and (<https://phosphatesfacts.org/wp-content/uploads/2015/09/The-Use-of-Phosphates-For-Potable-Water-Treatment.pdf>).

- (2) (Source: www.fluoridealert.org. An article was first published in Namaste Magazine Vol.9 Issue 2, www.namastepublishing.co.uk and then printed in a leaflet called 'Cathy's Horses Deformed and Disabled by Fluoridated Water' by the National Pure Water Association, NPWA).
- (3) (mentioned in the NPWA 'Watershed' magazine, Vol.12, Summer 2006).
- (4) (Source:<https://www.dogsnaturallymagazine.com/is-fluoride-bad-for-dogs/> and Fluoridation Weekly 21st December, 2021).
- (5) (Foulkes, 1994).
- (6) (Ref: 'Fluoride Poisoning' by Dr Bruce Spittle pages 50–59).
- (7) (Source: Dr Daren Goody, Scientist at The British Geological Survey (BGS) led research at Lancaster University and the British Geological Survey for Public Water Utilities in the UK, 4th August 2015).
- (8) (Ref: <https://doi.org/10.1016/j.etap.2021.103789>; 'The Fluoridation Record', newsletter, Dec 27th 2021. Mike Dolan, editor).
- (9) (Ref: <https://link.springer.com/article/10.1007/s00359-021-01528-9> or at <https://fluoridealert.org/studytracker/41058/>. Fluoridation Review 4th Dec 2021. Mike Dolan, editor).
- (10) (Lovelace, et al, 1968).
- (11) (Ref: 'Fluoridation the great Dilemma' by Dr George Waldbott, Chapter 3).
- (12) (Ref: Declan Waugh, Environ. Report, 2012 and 2013).
- (13) (Ref: Krishnamurthy, et al Fluoride exposure, Scandinavian Journal of Public Health, Jan. 2. 2021: and The Fluoridation Record Apr. 2021).
- (14) (Ref: PMID:35007676 DOI:10.1016/j.envpol.2022.118820) or (2022 April 1;298:118820. doi: 10.1016/j.envpol.2022.118820. Epub 2022.Jan 7).
- (15) (Ref: PFPC Switzerland 2000–2004).
- (16) (Source: page 36, 'Fluoridation the Great Dilemma').
- (17) (Fluoride Analysis Database Service, 2013, UKFFFA.org.uk).
- (18) (Ref: Cocks, 2010 and www.UKFFFA.org.uk – letter to the Environmental Agency 15th October 2021).
- (19) (Ref: 'Human Toxicology and Environmental Impact and legal Implications of WF', 2012, by Declan Waugh, Page 43).
- (20) (Source: FAN – www.fluoridealert.org).