



## PFAS contamination

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Per- and poly-fluoroalkyl substances (PFAS) are a group of nearly 5,000 man-made chemicals that have been used widely since the 1950s. Known for their water- and heat-resistant properties, they are used in products including furniture and fabric protectants, manufacture of electrical equipment, non-stick cookware, and as an ingredient in firefighting foam.

### Health and the environment

PFAS chemicals are resistant to degradation, so can build up in the environment, particularly where PFAS-containing firefighting foams have been used (e.g. airports, firefighting training sites, military bases). As well as persisting in the environment, PFAS can accumulate in living organisms including humans. An [All of Government programme](#),<sup>1</sup> led by the Ministry for the Environment, was established in 2018 to investigate potential PFAS contamination sites and examine the health and environmental impacts of any detected environmental contamination.

A [2018 report prepared for the Ministry for the Environment](#)<sup>2</sup> found that the impacts of PFAS on ecosystems in Aotearoa New Zealand was understudied, including aquatic and land-based animals and plants. Recent studies have explored the presence of PFAS in marine life and water, including a 2021 study on [PFAS in dolphins](#)<sup>3</sup> and a 2022 study looking at [PFAS in urban waters](#).<sup>4</sup>

Studies suggest that PFAS exposure [may be associated with adverse health effects](#).<sup>5</sup> A [2021 review](#)<sup>6</sup> noted that epidemiological and animal-based studies have found associations between exposure to specific PFAS chemicals and a variety of human health effects, but also found that knowledge about the mechanisms by which they cause harm and the impacts of many of the thousands of chemicals in the family are a significant knowledge gap. The Ministry for the Environment’s [2018 PFAS advice](#)<sup>7</sup> for councils states that “there is no consistent evidence that environmental exposures [of PFAS] at the low levels New Zealanders are generally exposed to will cause harmful health effects,” but notes that long-term health impacts that may result from accumulation have prompted concern.

One member of the PFAS family, perfluorooctane sulfonate (PFOS), has been effectively [banned in Aotearoa New Zealand since 2011](#)<sup>8</sup> (and banned for use in firefighting foams since 2006), and use of perfluorooctanoic acid (PFOA) is restricted. Both PFOS and PFOA are regulated at the international level under the [Stockholm Convention](#),<sup>9</sup> a global treaty to protect people and the environment from chemical contaminants.

### Read more

- Key messages from a 2019 [workshop on PFAS](#)<sup>10</sup> involving academics and government officials from Australia and New Zealand, held at the University of Auckland
- The Parliamentary Commissioner for the Environment’s 2021 [report on the regulation of environmental chemicals](#)<sup>11</sup> found that there are gaps in the way chemicals (including PFAS) are currently monitored and managed in Aotearoa New Zealand

## Endnotes

- <sup>1</sup> Cabinet Environment Committee paper – All of Government programme required to manage the response to per- and poly-fluorinated alkyl substances (2018), accessed on 12 October 2022 [https://environment.govt.nz/assets/Publications/PFAS-cabinet-paper-aog-national-programme\\_26-v2.04.pdf](https://environment.govt.nz/assets/Publications/PFAS-cabinet-paper-aog-national-programme_26-v2.04.pdf)
- <sup>2</sup> Report prepared for the Ministry for the Environment – Impact of Per and Poly Fluoroalkyl Substances on Ecosystems (2018), accessed on 24 February 2022 <https://environment.govt.nz/assets/final-impact-of-pfas-on-ecosystems.pdf>
- <sup>3</sup> *Marine pollution bulletin* paper – Per- and polyfluoroalkyl substances (PFAS), trace elements and life history parameters of mass-stranded common dolphins (*Delphinus delphis*) in New Zealand (2021), accessed on 15 August 2022 <https://pubmed.ncbi.nlm.nih.gov/34601248/>
- <sup>4</sup> *Journal of Hazardous Materials* paper – Occurrence and fate of poly-n and perfluoroalkyl substances (PFAS) in urban waters of New Zealand (2022), accessed on 15 August 2022 <https://www.sciencedirect.com/science/article/pii/S0304389422000450>
- <sup>5</sup> Food Standards Australia New Zealand Hazard Assessment report – Perfluorooctane Sulfonate (PFOS), Perfluorooctanoic Acid (PFOA), Perfluorohexane Sulfonate (PFHxS) (2018), accessed on 24 February 2022 [https://www1.health.gov.au/internet/main/publishing.nsf/Content/2200FE086D480353CA2580C900817CDC/\\$File/6.sd1-Hazard-assessment-report.pdf](https://www1.health.gov.au/internet/main/publishing.nsf/Content/2200FE086D480353CA2580C900817CDC/$File/6.sd1-Hazard-assessment-report.pdf)
- <sup>6</sup> *Environmental Toxicology and Chemistry* paper – Per- and Polyfluoroalkyl substance toxicity and human health review: Current state of knowledge and strategies for informing future research <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7906952/>
- <sup>7</sup> Ministry for the Environment advice for councils – Per and poly-Fluorinated Alkyl Substances (2018), accessed on 12 October 2022 <https://environment.govt.nz/assets/what-government-is-doing/Land/Advice-for-councils-PFAS.pdf>
- <sup>8</sup> Environmental Protection Agency webpage – Managing fire-fighting foams manufactured with PFAS chemicals, accessed on 12 October 2022 <https://www.epa.govt.nz/news-and-alerts/alerts/managing-fire-fighting-foams-manufactured-with-pfas-chemicals/>
- <sup>9</sup> United Nations Industrial Development Organisation webpage – Stockholm Convention, accessed on 24 February 2022 <https://www.unido.org/our-focus/safeguarding-environment-implementation-multilateral-environmental-agreements/stockholm-convention>
- <sup>10</sup> University of Auckland workshop key messages – PFAS in New Zealand: current knowledge and the steps forwards (2019), accessed on 24 February 2022 <https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/f/688/files/2020/02/PFAS-workshop-brief-2019.pdf>
- <sup>11</sup> Parliamentary Commissioner for the Environment report – Knowing what's out there: Regulating the environmental fate of chemicals (2021), accessed 15 August 2022 <https://www.pce.parliament.nz/publications/regulating-the-environmental-fate-of-chemicals>