



OIA 18-E-0510/docCM-5557437

10 September 2019

Peter Samson

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Dear Mr Samson

Thank you for your Official Information Act request to the Department of Conservation, dated 19 August 2018. You requested the following:

Could you please provide three scientific studies to show that 1080 has no effect on our waterways and does not contaminate our water. I would like these scientific studies to include data and tests from areas where 1080 has been dropped and found in rivers.

I have no difficulty complying with your request and you will find the details of scientific field studies below. However, for your information, these studies are all publicly available and therefore the department is not required to release them under the Official Information Act.

Eason CT, Wright GR, Fitzgerald H. 1992. Sodium monofluoroacetate (1080) water-residue analysis after large-scale possum control. *New Zealand Journal of Ecology*. 16(1):47-49

No 1080 was detected in 36 water samples taken from six streams over a 4-month period at Waipoua following aerial possum control using 0.08% 1080 Pellets sown at 5 - 6 kg ha⁻¹ in 1990. After the 1990 aerial possum control operation using 0.08% 1080 pellets at 14 kg ha⁻¹ on Rangitoto Island, 24 water samples were collected over 6 months from 2 surface water and 2 ground water sites. No 1080 was detected in any of these samples. These sowing rates were significantly higher than those currently used for pest control in NZ.

Suren AM, Lambert P. 2006. Do toxic baits containing sodium fluoroacetate (1080) affect fish and invertebrate communities when they fall into streams? *New Zealand Journal of Marine and Freshwater Research*. 40:531-546

Suren and Lambert conducted an experiment to assess the ecological impact of 1080 leaching from baits on aquatic invertebrate communities. The experiment was conducted in four streams in the Mawhera Forest in the Grey Valley, West Coast. In each stream four sites were selected – 10 m and 100m downstream and 10 m and 100m upstream from where the 1080 baits were to be placed. At each site invertebrate communities on 10 replicate rocks were quantified 4 days and 1 day prior to baits being placed in the stream. Baits were placed in the stream at a density equivalent to 10x the normal sowing rate. The invertebrate communities were resampled 1 day and 4 days after the bait was placed in the stream. No biologically significant effects on the invertebrate communities as a result of the 1080 were observed.

Srinivasan MS, Suren A, Wech J, Schmidt J. 2012. Investigating the fate of sodium monofluoroacetate during rain events using modelling and field studies. *New Zealand Journal of Marine and Freshwater Research*. 46(2):167-178

Srinivasan et al. investigated the fate of 1080 released from baits during a rainfall event immediately following an aerial 1080 operation. In this field study, stream and soilwater was sampled in a 148.8 ha headwater catchment of the Inangahua River, on the West Coast, following the application of 0.15% 1080 Wanganui #7 pellets. The pellets were applied at a rate of 2.5 kg ha⁻¹ within 24 hours of a rainfall event (28 mm in 8 hours, with an additional 100mm falling over the next 9 days). Water sampling occurred between 5 hours and 9 days after the 1080 was applied. The only stream sample that contained 1080 (at 0.1 µg l⁻¹) was collected 105 minutes after the rain started. None of the other 15 samples contained 1080 residues. Soilwater samples were taken approximately 200 mm downhill from baits after 34.4, 57.0 and 60.6 mm of rain had fallen. 1080 residues in these soilwater samples ranged from 0.5 – 61 µg l⁻¹.

M. S. Srinivasan & A. Suren (2018): Tracking 1080 (sodium fluoroacetate) in surface and subsurface flows during a rainfall event: a hillslope-scale field study, *Australasian Journal of Water Resources*, DOI: 10.1080/13241583.2018.1452329
To link to this article: <https://doi.org/10.1080/13241583.2018.1452329>

This field study was conducted on the West Coast of the South Island, New Zealand, to investigate the transport of 1080 (sodium fluoroacetate) from RS5 baits in rainfall. Two kilograms of baits was hand-laid on a hill adjacent to a stream, immediately before forecast rain. Overland, groundwater (<1 m from surface) and stream samples collected during and immediately after the event recorded no detectable levels (method detection limit, 0.1 ppb) of 1080. Less than 0.7% of rainfall was recorded as overland flow. Even as a large proportion of rainfall infiltrated into the soil, likely carrying dissolved 1080 with it, no groundwater contamination was detected. Of the seven soil water samples that had detectable levels, the highest concentration (1.4 ppb) observed was below the NZ Ministry of Health standard for drinking water (3.5 ppb). The findings suggest that the potential for 1080 to contaminate receiving waters (including soil, ground and surface water) under normal operational conditions is considered insignificant.

Please note that this letter (with your personal details removed) and enclosed documents may be published on the Department's website.

Yours sincerely



Amber Bill
Director, Threats