

# Stony Creek monitoring update



Environment  
Protection  
Authority Victoria



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Community information

## Stony Creek monitoring

EPA finished monitoring Stony Creek, downstream of the chemical factory fire, in February 2020. This update reports on the final batch of water and sediment samples collected on 14 February 2020 at four locations along the Stony Creek waterway (Figure 1) and provides evidence to support the removal of precautionary signage along the waterway.

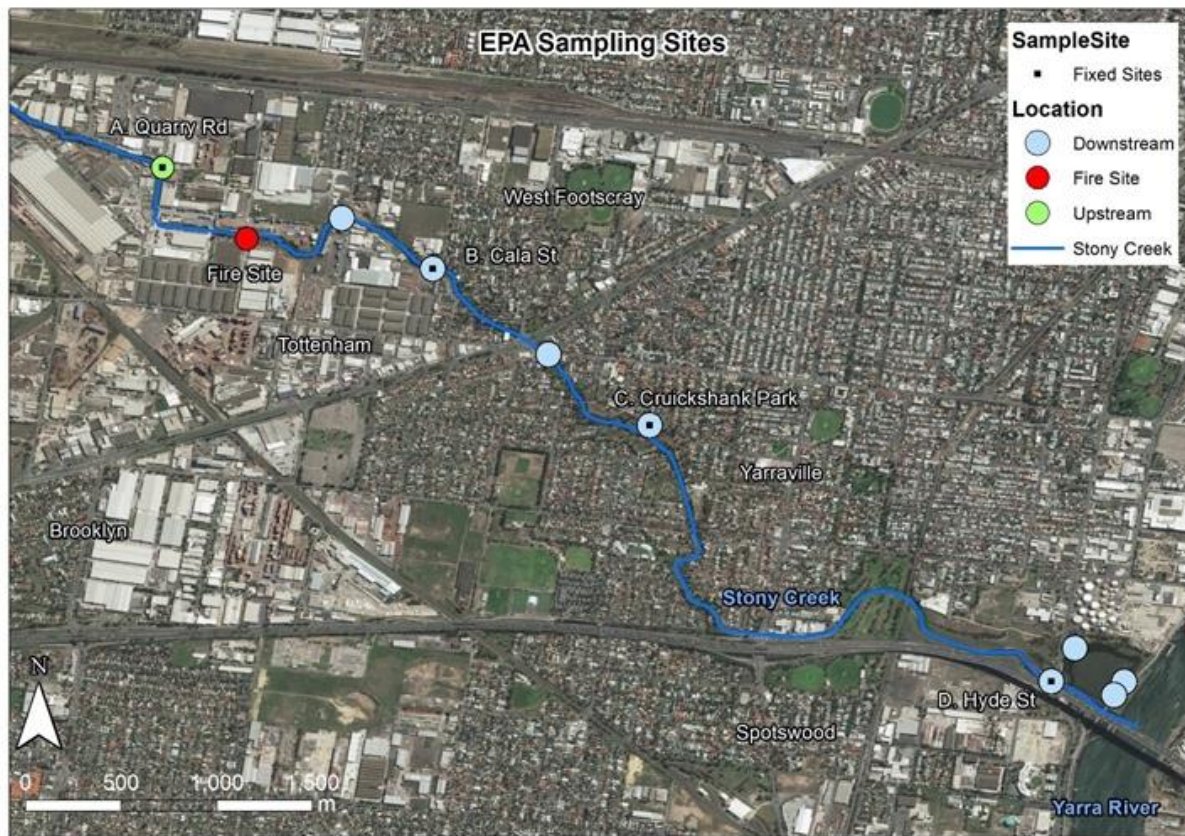


Figure 1. Map of monitoring sites along Stony Creek.



# Stony Creek monitoring update

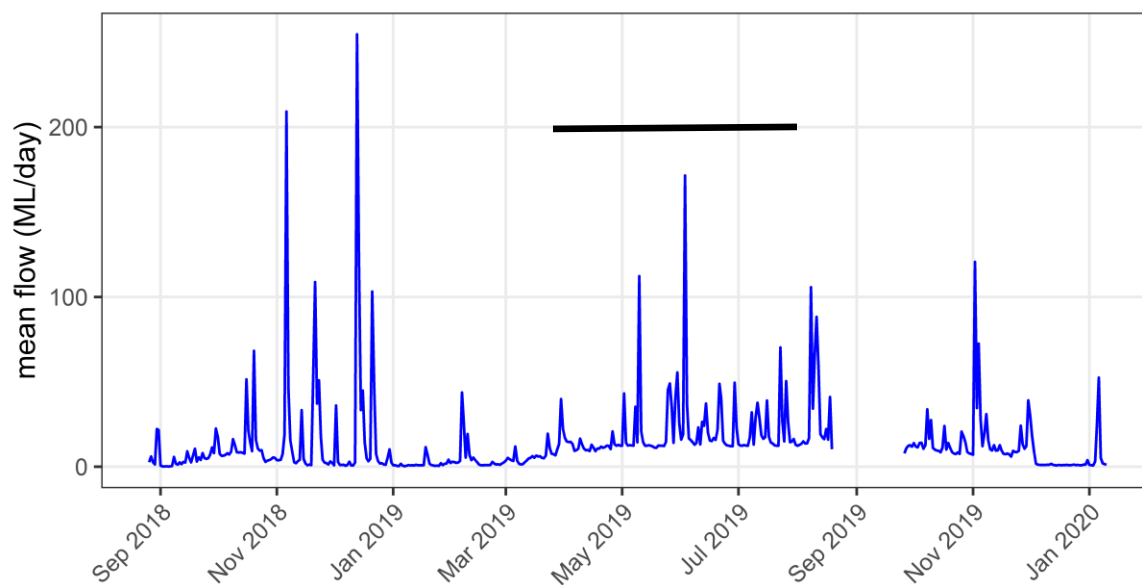
## Environmental monitoring

We have tested water for a range of contaminants from the Stony Creek area. Past results have shown that a range of industrial solvents, detergents and ash particles were washed into Stony Creek. The key chemicals detected were:

- phenol (an industrial chemical and cleaning product)
- polycyclic aromatic hydrocarbons (fire and soot by-products)
- lighter petroleum hydrocarbons called BTEX (benzene, toluene, ethylbenzene and xylene)
- PFAS (per- and poly-fluoroalkyl substances)
- industrial solvents such as acetone and butanone.

Concentrations of these chemicals were very high in Stony Creek on the days immediately following the fire on Thursday 30 August 2018. In some cases, they exceeded human health recreational contact guidelines for several days after the fire. Their presence resulted in the rapid death of fish and aquatic life in Stony Creek, although concentrations of these chemicals have declined significantly since.

As part of rehabilitation of Stony Creek, Melbourne Water removed significant quantities of contaminated sediments downstream of the fire site between April and July 2019. Figure 2 shows Stony Creek mean daily water flows from 26 August 2018 to 20 April 2020. The black horizontal bar shows that the period of dredging coincided with higher base flows in Stony Creek from May to August 2019. Significant rainfall and flow events in the early months of 2020 may have contributed to further flushing of contaminants from affected areas within Stony Creek.



**Figure 2** Stony Creek mean daily flows (ML/day) measured at the Spotswood gauging station (Bena St, Yarraville) from 26 August 2018 to 20 April 2020. Black line indicates period where dredging was undertaken.

# Stony Creek monitoring update

## Latest results

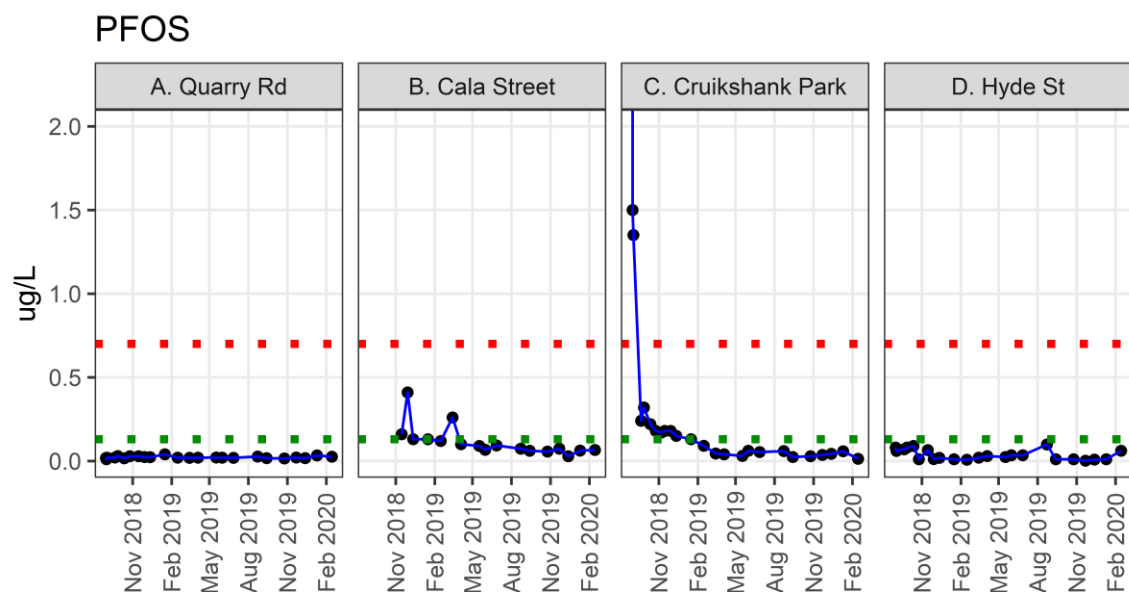
### Water quality

This update includes water quality data from 30 August 2018 to the most recent available results from samples collected on 14 February 2020.

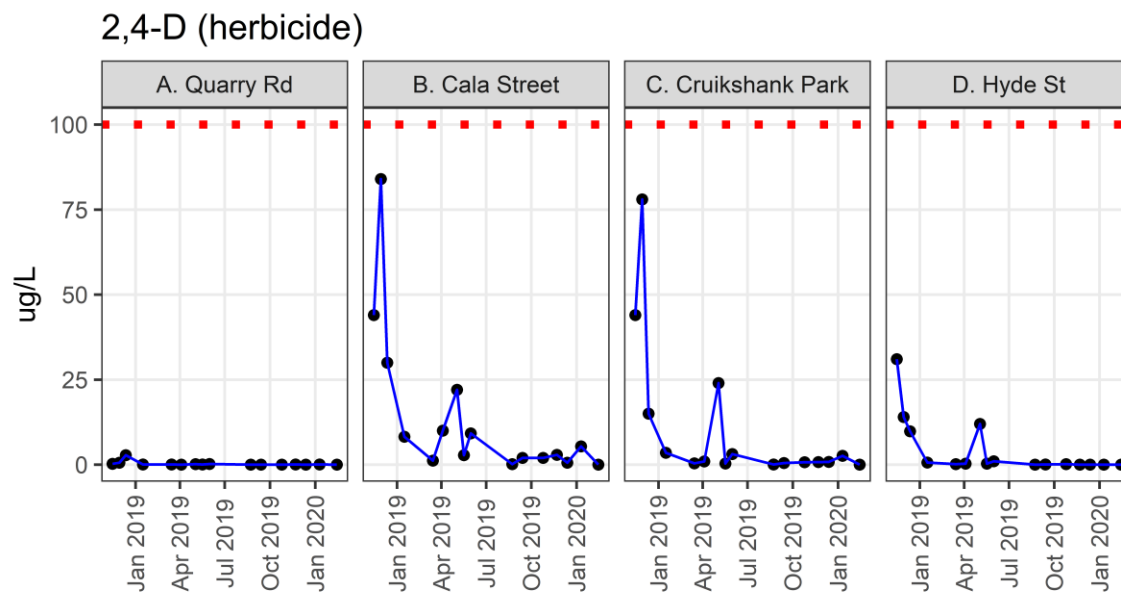
Concentrations for the persistent chemical perflurooctane sulfonate (PFOS) (Figure 3) were below human health and environmental guidelines on 14 February 2020 but remained above background levels at Cala St and Hyde St. Concentrations of the persistent herbicide 2,4-D were below the level of detection at all sites for the first time since monitoring for this herbicide began in November 2018.

### Human health

Pleasingly, no exceedances of human health recreational water quality guidelines were observed during the extensive removal of the sediment downstream of the fire site suggesting that mobilisation of contaminants were well managed and minimised during the works. No exceedances of human health recreational water quality guideline values have been identified since shortly after the fire in 2018 and for this reason it is now considered safe to remove the precautionary signage placed along the waterway during the incident.



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**Figure 3.** Results for PFOS and the herbicide 2,4-D upstream of the fire site (Quarry Rd) and at three sites downstream of the fire site at Cala St, Cruickshank Park and Hyde St from 30 August 2018 to 14 February 2020. The red and green lines indicate recreational water quality and aquatic ecosystem guidelines, respectively. Note, the very high PFOS levels recorded on 30 August 2018 downstream of the fire site are not displayed at scale on this figure to aid interpretation.

Chemicals presented in previous water quality updates occurred below detectable levels and are not presented (for example BTEX chemicals benzene, ethylene, toluene and xylene, acetone, methylethylketone, and phenol).

### Sediment quality

#### Environmental

EPA has tested sediment for a range of pollutants from the Stony Creek area since 11 September 2018. In most cases contaminant levels in the sediment have declined. However, concentrations of hydrocarbons in the sediments of Stony Creek remained above human health and environmental guidelines at Cala St on 14 February 2020 (Figure 4). This area of the creek, as well as the 'dog pond' in Cruickshank Park, were targeted for sediment removal in March. We will report on the results from the sediment removal later this year.

Concentrations of the **C10-C40 hydrocarbon** fraction were well above the environmental guidelines for sediments at Cala St and just above the guideline at Cruickshank Park (Figure 4).

**Copper** concentrations at Cala St were above environmental guidelines for sediments and continued to exceed background levels upstream of the fire on the 10/01/2020 (Figure 4).

There has been a high variation in sediment contaminant levels over time at Cala St, which likely reflects the patchy distribution of contaminants in the sediments at this site.

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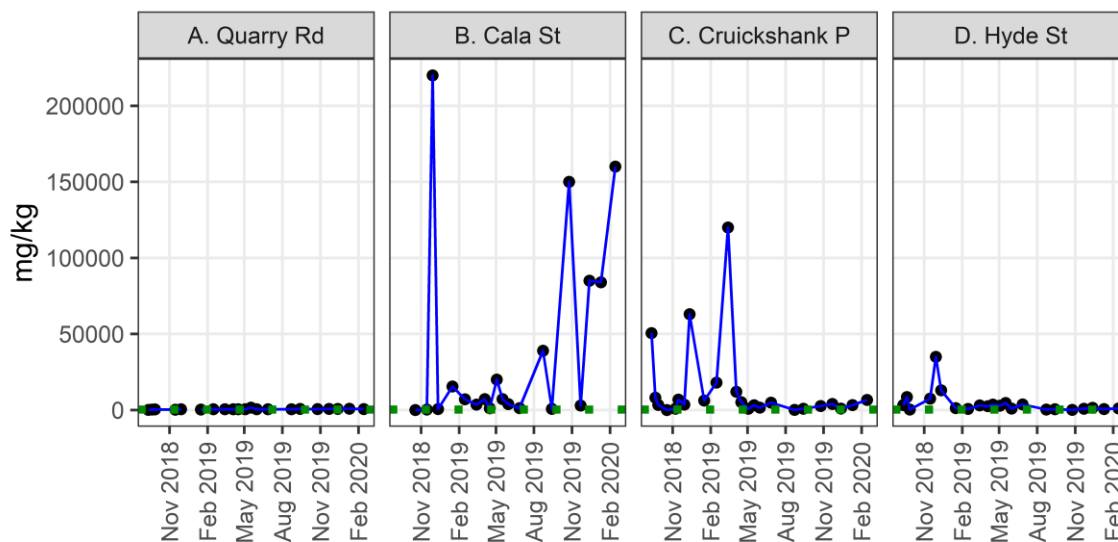
## Human health

Exceedances of soil Health Investigation Levels (HIL) continued to be observed at the Cala Street sampling location in the C16-C34 hydrocarbon fraction, most recently on 14 February 2020.

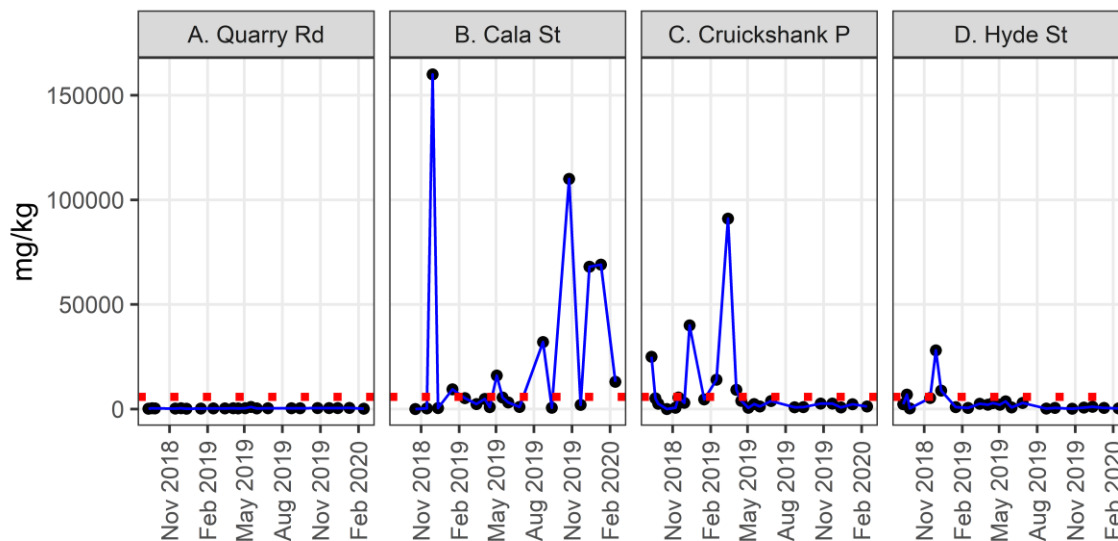
While levels in excess of the relevant HIL do not always imply unacceptability, or potentially significant health risk they do advise of a need for consideration of management options or exposure scenarios to protect the community by minimising when practicable, human exposure to the material.

In this case, exposure to this material is thought to be minimised as the sediments are located on the bottom of the creek and in an area not highly accessed by creek users.

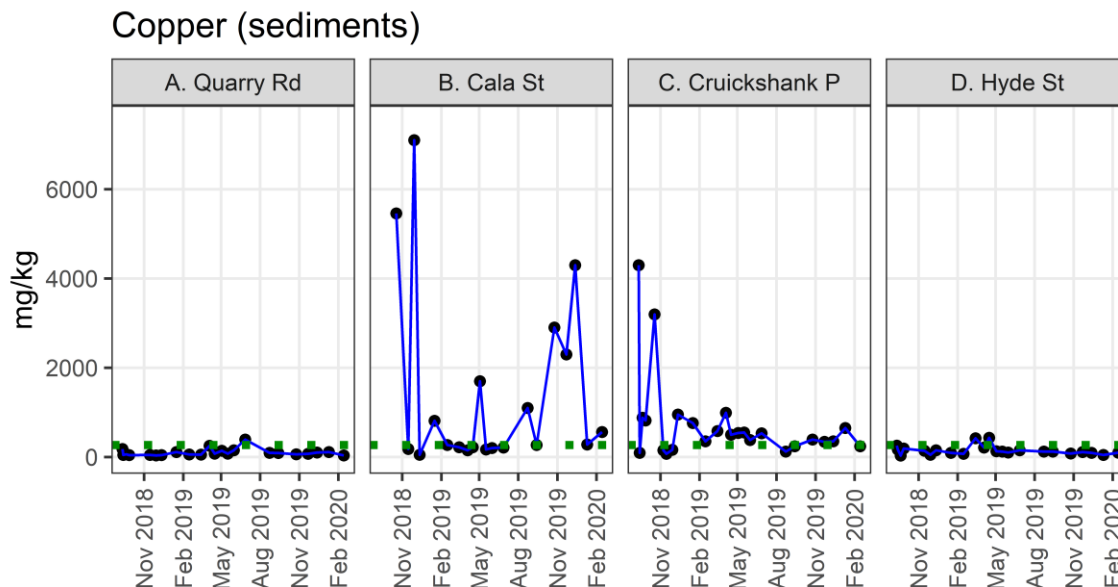
### C10-C40 Hydrocarbons (sediments)



### C16-C34 Hydrocarbons (sediments)



## Stony Creek monitoring update



**Figure 4.** Results for the C10-C40 and C16-C34 hydrocarbon fractions and copper in sediments sampled upstream of the fire site (Quarry Rd) and downstream of the fire site at Cala St, Cruickshank Park and Hyde St from 11/09/2018 to 14/02/2020. The red line indicates human health guidelines for recreational contact. The green lines indicate aquatic ecosystem guidelines for sediments.

Other chemicals presented in previous updates occurred below relevant guidelines and are not presented here (for example C6-C10 hydrocarbons and PFOS).

### Further information

- For information about the recovery, go to [maribymong.vic.gov.au/recovery](http://maribymong.vic.gov.au/recovery)
- For information about the management of the waterways, go to [melbournewater.com.au](http://melbournewater.com.au)
- Connect with EPA on Twitter at [@epa\\_victoria](https://twitter.com/epa_victoria) for updates.