Pesticide Detectives

Interpretation of results
Sampling Blitz 3 - Feb to Apr 2020

KEY FINDINGS

- Pesticides were detected in sediment at 8 out of 79 sites (10%); meaning most sites sampled in this round did not have detects of pesticides that are on our list (see www.pesticidedetectives.com.au for full list of pesticides).

- Diuron is a herbicide and an algaecide. It was detected at Brid River (TAS) at 0.029 mg/kg and at Moresby River (QLD) at 0.012 mg/kg. Sediment Quality Guideline Values (SQGV) are not available for Diuron. In QLD, it may be used to control weeds for sugarcane, bananas and cotton. The Moresby River site is near sugarcane crops. Diuron may be used as an antifoulant for vessels. The Brid River site is dominated by urban recreational landuse.

- Iprodione, a fungicide, was detected at Reedy Swamp (VIC) at 0.011 mg/kg. There is no SQGV for Iprodione. The Reedy Swamp site is surrounded by agricultural land.

- Bifenthrin, a synthetic pyrethroid, was detected at 6 out of 8 sites that pesticides were detected. SQGV is not available for bifenthrin. Values were normalised based on Jeppe et al. (2017) for toxicity comparisons.

- Highest concentrations of bifenthrin were detected at Moresby River in QLD (1.73 µg/gOC) followed by West Belconnen Pond, ACT (1.70 µg/gOC), and Christies Creek, SA (1.69 µg/gOC). Concentrations greater than 1.91 µg/gOC pose a risk to freshwater crustaceans (Jeppe et al., 2017). Concentrations detected at the 6 sites for round 3 sampling were all below 1.91 µg/gOC.

- Bifenthrin concentrations at the mouth of Barongarook Creek, VIC, Brookfield Dam, WA and Tone River, WA, ranged from 0.22 to 0.38 µg/gOC.

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Interpretations

Results displayed on the Pesticide Detectives map at www.pesticidedetectives.com.au/results are raw pesticide data in mg/kg for all pesticides. In this interpretation of results, for some pesticides, such as bifentrhin, an organic carbon normalisation is undertaken to determine the bioavailable concentration of the pesticide in sediments. The organic carbon normalised values are used to access risks posed to aquatic biota through comparisons to sediment quality guidelines.

My site has pesticides detected- what do I do now?

- Please contact the Australian Pesticides and Veterinary Medicines Authority (APVMA) for information on the chemical of interest. APVMA: +61 2 6770 2300.

Pesticide Information is also available on our website under Pesticide Information.

- A single sample gives us an idea of the occurrence of pesticides, additional samples can confirm their presence and concentrations over time and help work out the next steps.

Why didn’t we get many sites with pesticides detected?

- Pesticides that we are screening for may not have been present in the sediment at the site, which is good news!
- New pesticides are being created every day - while we have screened for an extensive list of pesticides, there may not be a test available to detect a particular pesticide that is present.
- Some pesticides are more water-soluble and, if present, may not have adsorbed to sediment sufficiently for detection to occur.
- Dynamics of the waterway may mean that pesticides could have been present in sediment in different locations of the waterway but not at the specific sites that were sampled.
- Quality of sediment may affect detection of pesticides. Pesticides may not adsorb to sandy or coarse sediment compared to fine sediment.

For specific information on the pesticides detected, please go to the Pesticide Information Fact Sheets on our website.

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