Doctors alarmed at potential toxic effect from chemicals & heavy metals with dredging of Yarra River

The Yarra River bed is highly contaminated with dangerous chemicals and heavy metals, such as lead, cadmium, mercury, and arsenic.¹ This has resulted from contamination over many decades from various sources such as industry and the goldfield days when mercury was used to extract gold.

According to the URS report published in the Environmental Effects Statement (EES), the concentration of contaminants in sediments from the Yarra River and Northern Channels include:

- arsenic from <5 mg/kg to 65 mg/kg
- barium from <10 mg/kg to 310 mg/kg
- beryllium from <1 mg/kg to 3 mg/kg
- cobalt from <2 mg/kg to 28 mg/kg with 2 samples 44mg/kg, 126mg/kg
- lead from <5 mg/kg to 199 mg/kg
- nickel from <1 mg/kg to 52 mg/kg
- silver from <0.1 mg/kg to 129 mg/kg
- tin from <5 mg/kg to 17 mg/kg
- mercury from <0.1 mg/kg to 1.1 mg/kg
- cadmium levels up to 1.2 mg/kg

Dredging can cause dispersion of the sediment containing these toxins, releasing them into the bay, leading to exposure to marine life and inevitably working through the food chain, putting penguins, dolphins and humans at risk. Heavy metals are of particular concern as they are cumulative poisons that may cause a potentially serious public health issue.

Members of the medical profession have looked at research on these toxins which can accumulate up the food chain and are alarmed that they may be dispersed through dredging. “Individual heavy metals can cause debilitating illness and death and there may be a cocktail effect whereby combinations of 2 or more toxins at supposedly safe levels can have a multiplier effect and become more harmful than the individual toxins alone” warns Professor Marc Cohen of the Department of Complementary Medicine at RMIT University.

Dr Gary Deed, Federal president of the Australasian College of Nutritional and Environmental Medicine stresses that “evidence is undeniable that exposure to heavy metals may have immediate and long-term effects on health especially to children. The effects on neurological and immune development are critical. No professional or parent would like to see this happen from unwanted exposure to toxic waste”.

Professor Ian Brighthope, an environmental consultant and immediate past president of the Australasian College of Nutritional and Environmental Medicine, warns that “we ought to have learnt from extreme cases such as the Bay of Minamata in Japan, which
was one of the world's most severe cases of population mercury poisoning where locals eating mercury contaminated fish from the Bay suffered extremely painful and debilitating weakness, paralysis and in many cases death".

The Foods Standards Australia New Zealand (FSANZ) advises pregnant women, women planning pregnancy and young children should limit their intake of shark (flake), broadbill, marlin and swordfish to no more than one serve per fortnight with no other fish to be consumed during that fortnight due to risks of mercury toxicity.2 Mercury is known to be a lethal toxin especially to the nervous system and exposure to mercury is known to cause nerve toxicity. “Pregnant women and children will be most at risk if exposed to mercury” warns Dr Vicki Kotsirilos, a medical practitioner and past founding president of the Australasian Integrative Medicine Association.

Flake available widely at Fish and Chip shops can come from our bay. There is the potential for the future that we will no longer be able to eat fish from our bay. This will seriously impact on the local fishermen and fish market sales.

“These toxic substances can also be of danger to those swimming in the water especially young children who may swallow water and may contribute to the overall body burden” says Professor Avni Sali president of the Australasian Integrative Medicine Association. “The heavy metals become organic salts and can also absorb through the skin”.

Most of the heavy metal contaminants are bound to the fine silt particles as insoluble sulphides. When the sediment is suspended and comes into contact with oxygen and sulphur oxidising bacteria, the heavy metals can be quickly converted to more soluble forms-the heavy metals then are able to enter the body and enter the food chain. While monitoring can identify contamination, it will not reduce or prevent exposure. The safest path is to make sure the sediments are not disturbed at all, because toxic materials attached to the fine particles will be partially released into the water when it is dug up, and many of these particles will be carried down the Bay towards Rickets Point by the currents.

Doctors are calling on the Victorian Government to ensure that the toxins in the Yarra bed are not disturbed.

Press conference: Tuesday 11th March 2008, start of St Kilda pier, at 12pm midday

All doctors quoted in the release are qualified medical practitioners. They are all available and willing to speak with the media.
Compare the ABOVE figures with sediment guidelines that are considered protective of human health from the California State Water Resources Control Board (CSWRCB).
The values (in mg/kg) quoted for heavy metals are:
Arsenic 0.200
Cadmium 0.640
Copper -
Lead -
Nickel 220
Zinc -
Mercury 1
TBT 300 (microgram/kg)

References
¹ Northern Channels Sediment Investigation, Port Phillip Bay Supplementary EES URS, prepared for Golder Associates, 17 January 2007 Section 5 Results 5-1 to 5-64.