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The National Decommissioning Centre

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Assessing post depositional reactivity of legacy contamination: A case study on mercury

Christoph Gade

The National Decommissioning Centre
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Cuttings pile formation

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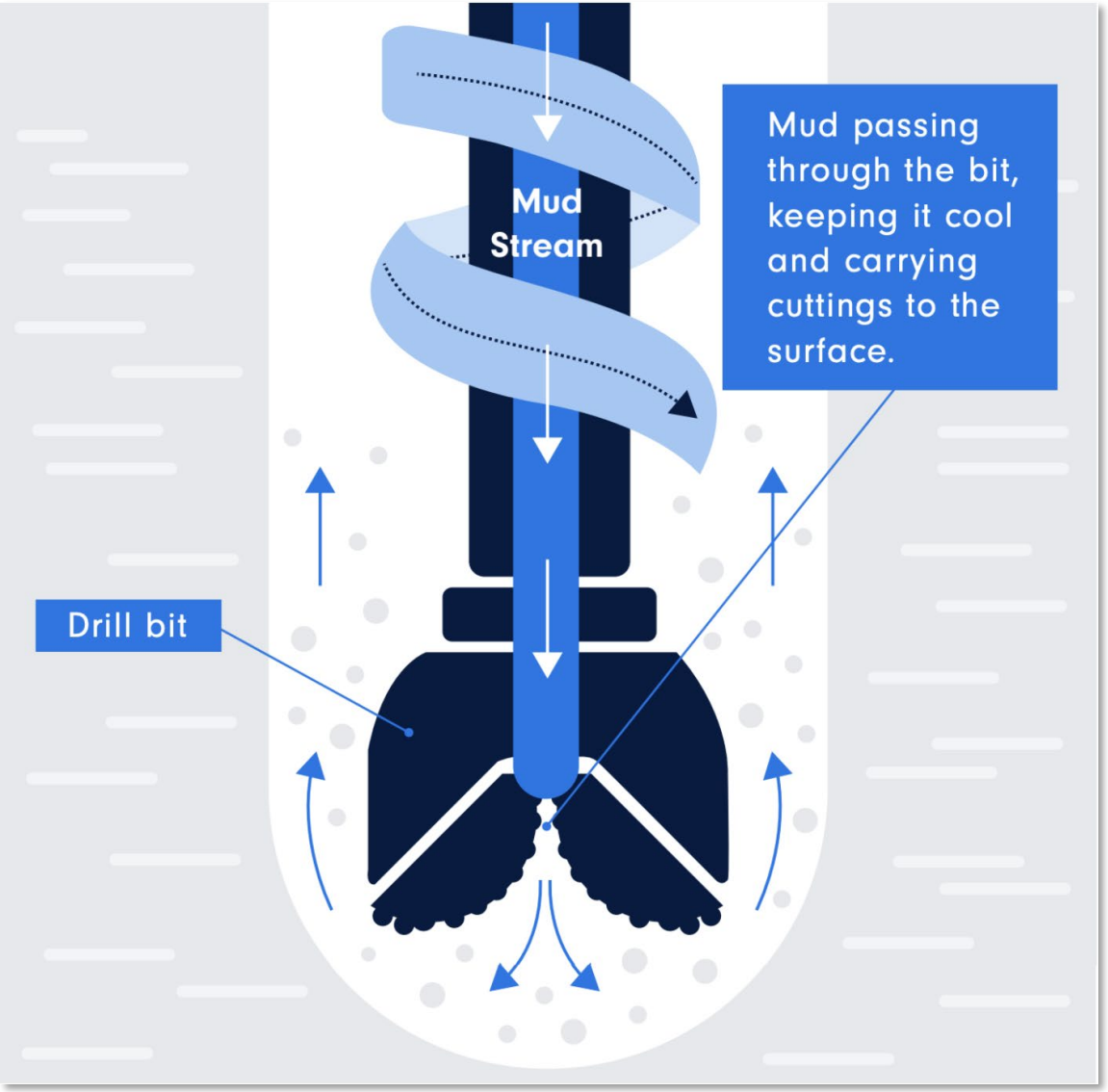


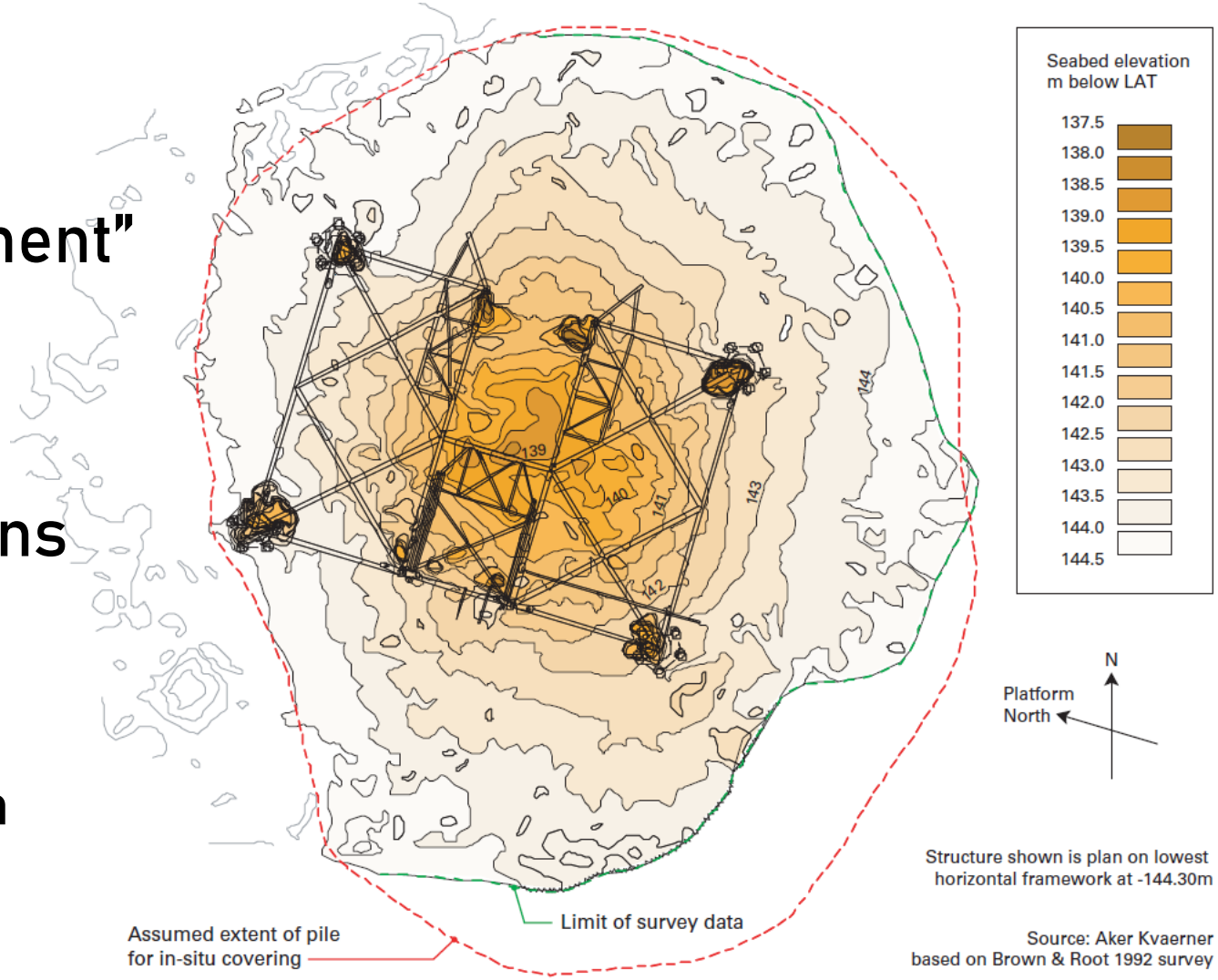
OSPAR 2000/3

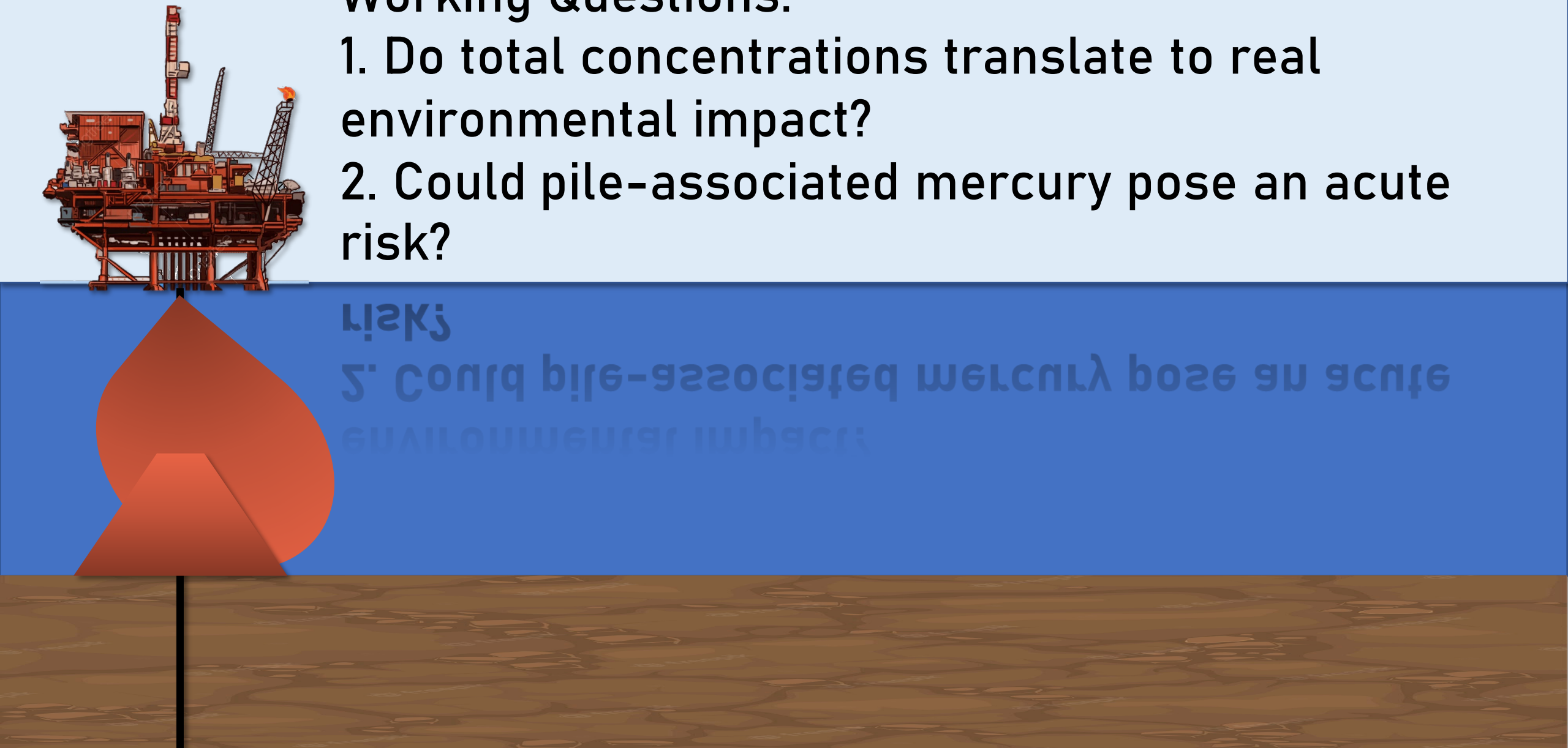
Study site

BP North West Hutton

Material “lost to the environment”

- 52,000 tonnes of cuttings
- 26 mio. litres of hydrocarbons
- 31,000 m^3 cuttings pile
    - 5.5 m high / 200 x 150 m area

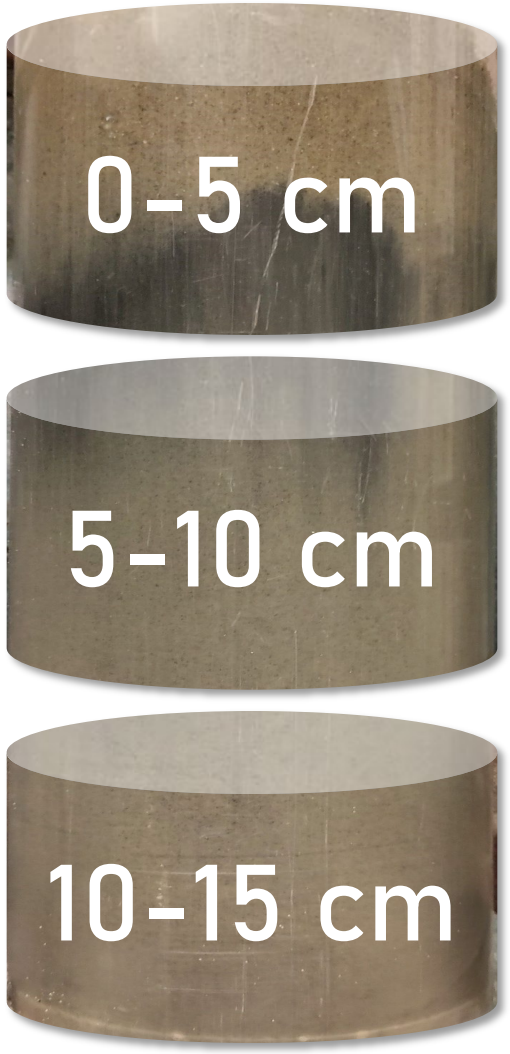


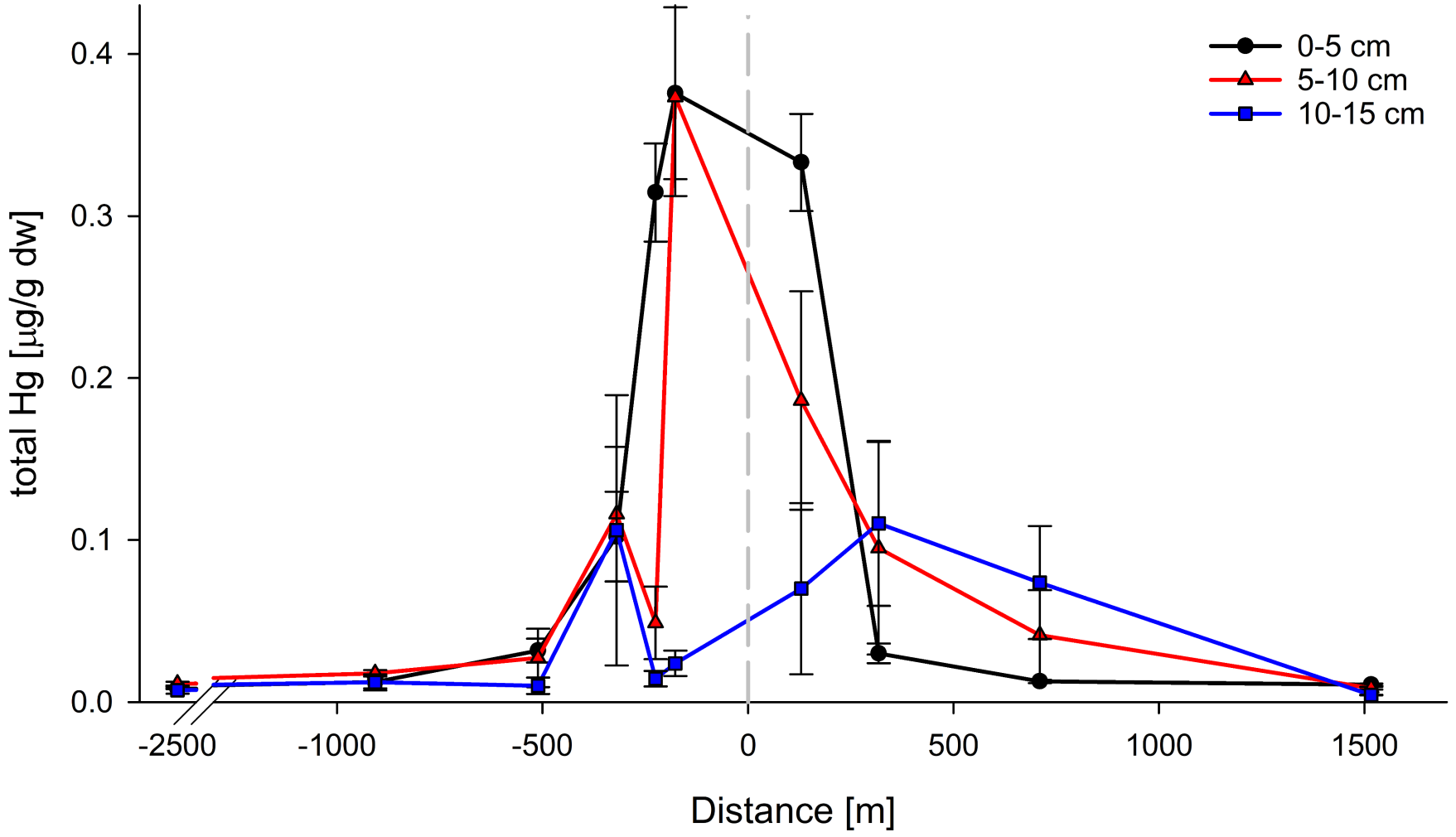


Working Questions:

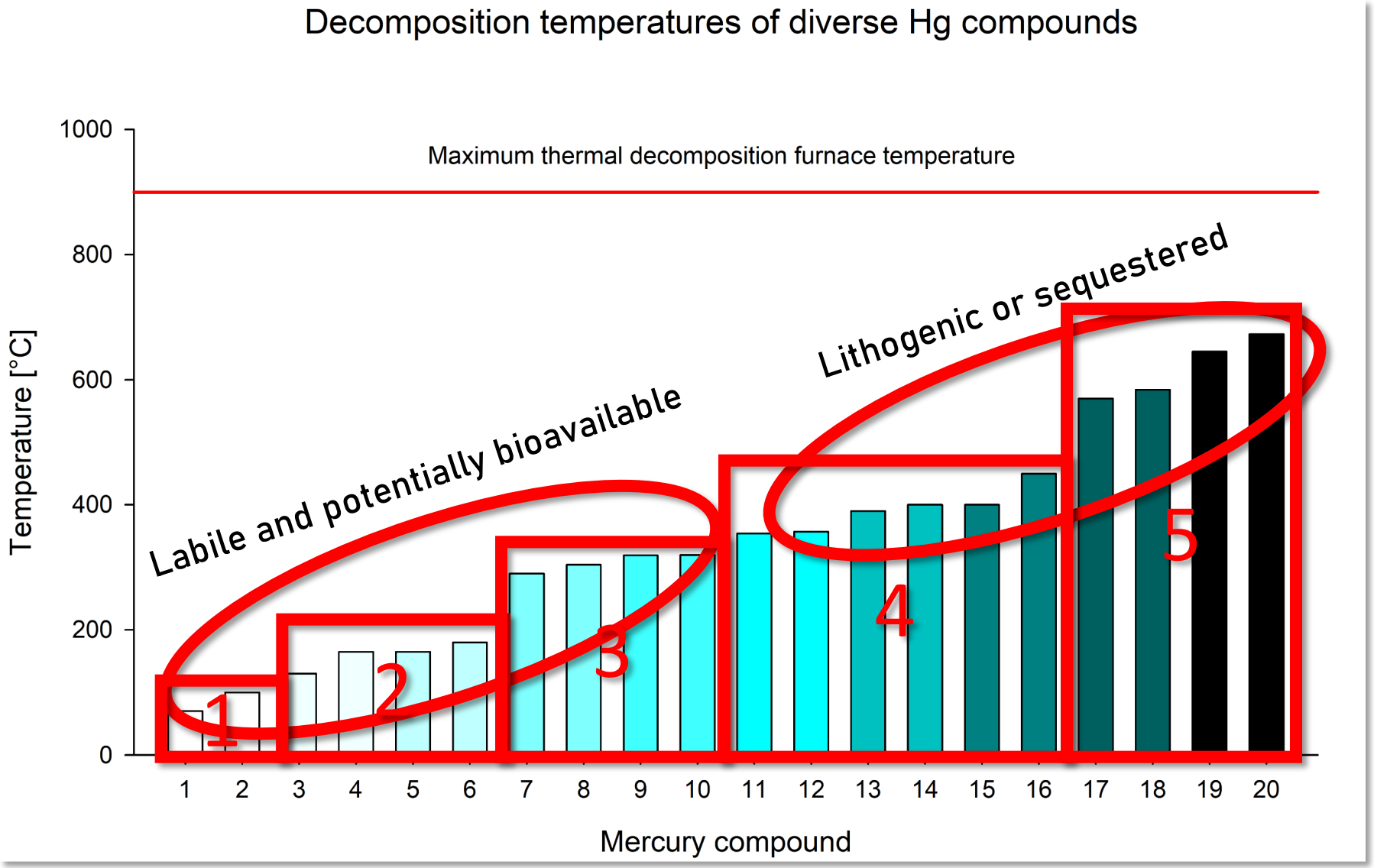
1. Do total concentrations translate to real environmental impact?
2. Could pile-associated mercury pose an acute risk?

Sample analysis

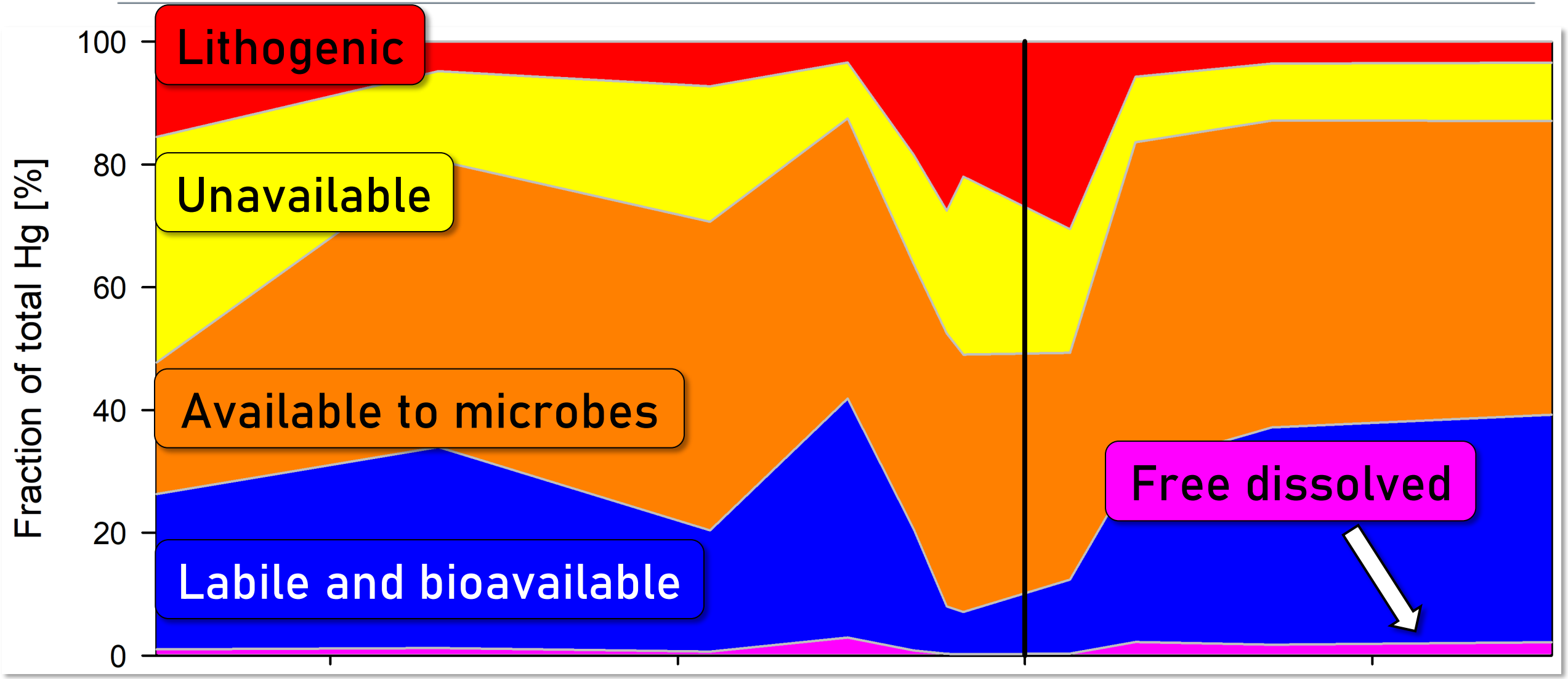




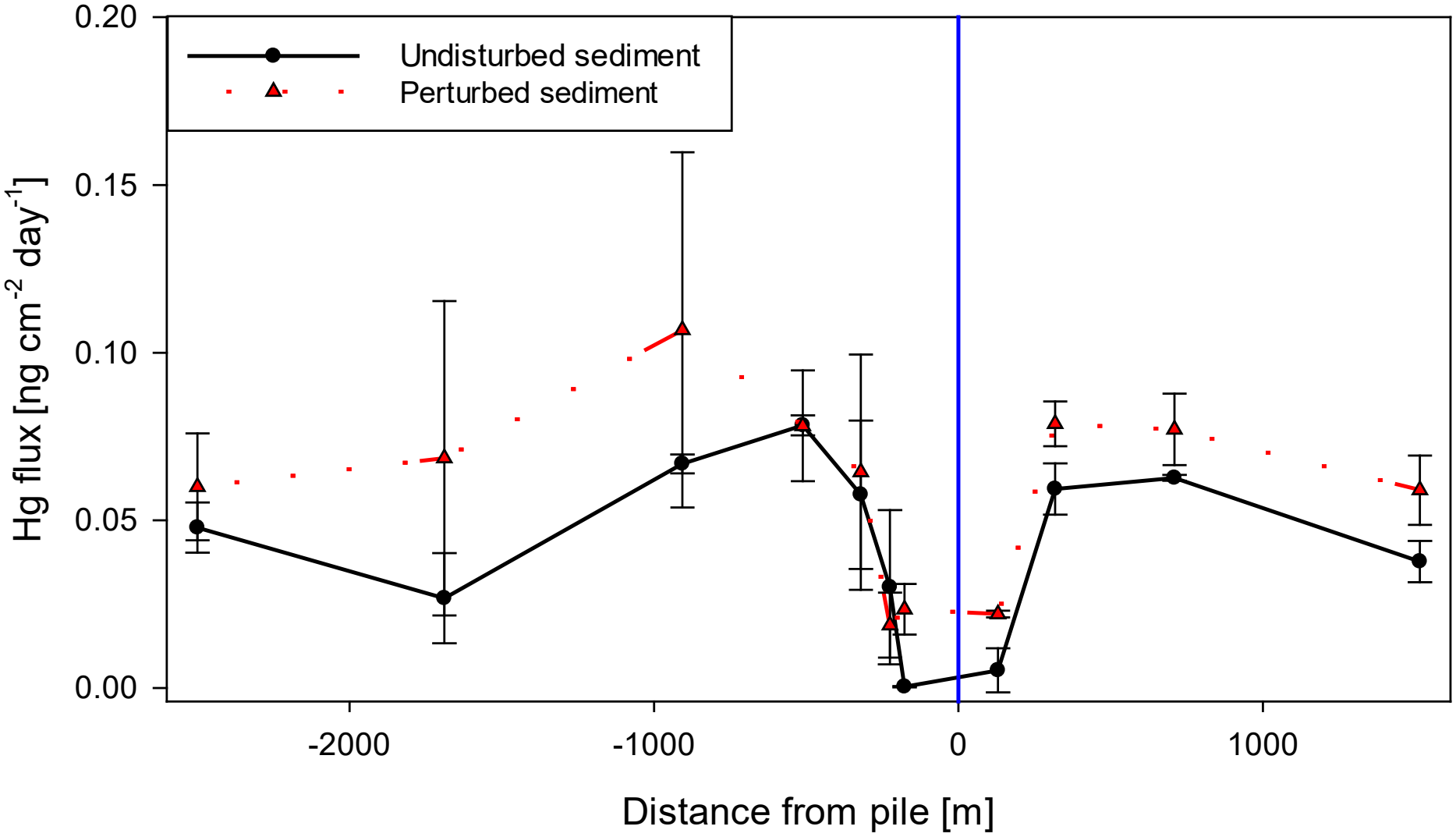
Mercury fingerprint



Mercury fingerprint



Benthopelagic flux?



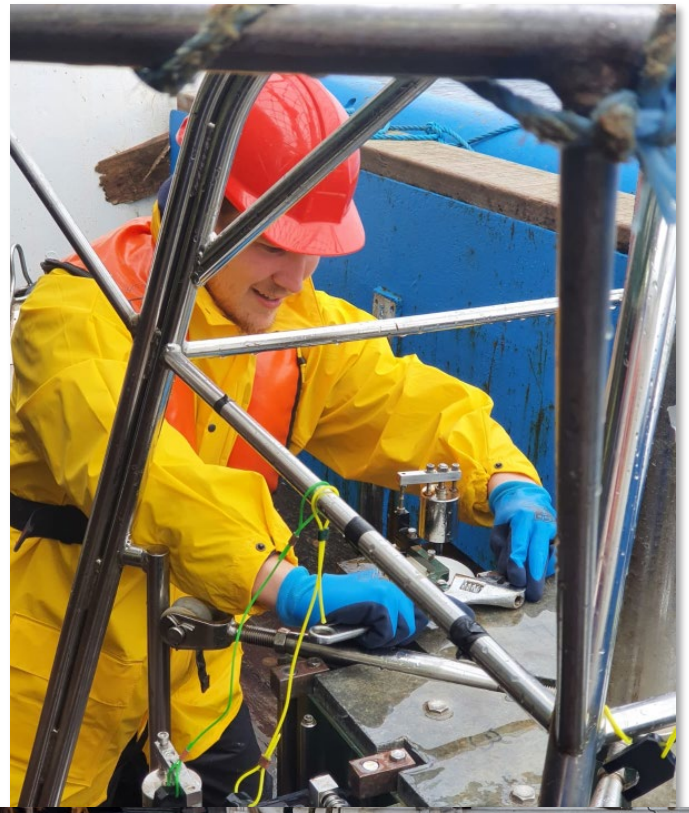
Conclusion

Significant anthropogenic enrichment of mercury in cuttings piles exists

Acute toxicity exerted by hydrocarbons
Potential chronic burden on benthic organisms

Current data suggests only little mercury leaching

DGT data mirrors thermofractionation analysis



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Thank you to everyone at UoA, Marine Directorate, the National Decommissioning Centre UK, and Chevron for their support and funding.