

Elevated metal levels found in QLD turtles

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A research project has discovered potentially harmful levels of cobalt, a naturally occurring mineral that can also be an environmental pollutant, in the blood of Queensland turtles.

Queensland is one of the world's largest cobalt exporters.

Researcher C. Alex Villa from the Queensland Alliance for Environmental Health Services —a partnership between The University of Queensland and Queensland Health — was lead author of a study on metals in coastal green sea turtles.



Turtles in the Howick Group of islands in far north Queensland's Great Barrier Reef, removed from localised human-caused pollution, served as a baseline to which researchers compared populations from Cleveland Bay, Upstart Bay and Shoalwater Bay.

"Turtles tested at Cleveland Bay and Upstart Bay looked healthy on the outside but their blood cobalt levels were very high in comparison to the GBR (Great Barrier Reef) metal baseline levels," Villa said. "At Upstart Bay we found green turtles had cobalt blood levels four to 25 times higher than the baseline established by our research."

"Levels of other metals well above the baseline were also observed in turtles along the Queensland coast, with molybdenum, manganese, magnesium, sodium, arsenic, antimony and lead. "

Although Upstart Bay is on a rural coastline, the Burdekin River has one of the highest discharge volumes of any river in Australia, and encompasses a catchment of 130,000 km².

Cleveland Bay is adjacent to Townsville, where metal processing is a key industry, while Shoalwater Bay is a military area that has intermittent underwater demolition and explosives disposal.

Co-author and veterinarian Mark Flint of UQ's (The University of Queensland) Vet-MARTI unit said 44 per cent of tested Upstart Bay turtles indicated signs of a systematic stressor and an active inflammatory response.

He said elevated levels of cobalt, antimony and manganese correlated significantly with clinical markers of inflammation, and markers indicating stress on turtle organs needed for expelling toxins.

A quarter of the 161 turtles examined at Upstart Bay this year had mild to severe eye lesions.

"We don't know why this is occurring. The infection appears to be bacterial and not a virus, so it could be another indication that this is a population under pressure," Flint said.

Co-author Caroline Gaus released findings last year showing green turtles from Queensland's nearshore habitats were exposed to thousands of chemicals, with unknown effects.