

Sediment dwelling creatures at risk from nanoparticles in common household products

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Credit: George Hodan/public domain

Researchers from the University of Exeter highlight the risk that engineered nanoparticles released from masonry paint on exterior facades, and consumer products such as zinc oxide cream, could have on

aquatic creatures.

Textiles, paint, sunscreen, cosmetics and food additives are all increasingly containing metal-based nanoparticles that are engineered, rather than found naturally.

The review, published today in the journal *Environmental Chemistry*, highlights the risks posed to [aquatic organisms](#) when nanoparticles 'transform' on contact with water and as they pass from water to sediment and then into sediment dwelling organisms.

Sediments are important for the health of many [aquatic ecosystems](#) and are speculated to be a large potential sink for nanoparticles.

Richard Cross, lead author and postgraduate researcher from the College of Life and Environmental Sciences at the University of Exeter's Biosciences department said: "We argue for the need to incorporate the transformations that engineered nanomaterials undergo as they pass from water bodies into sediments, as their form and nature will change as they do so. This is important to consider if we are to improve environmental realism in our experimental efforts and also better understand the long term effects of these materials in the environment."

Professor Charles Tyler, of the College of Life and Environmental Sciences at the University of Exeter, added: "In the aquatic environment, it is known that many nanomaterials will end up in the sediment, so it makes sense to focus on this environmental compartment as a possible [worst case scenario](#) for exposures and effects in aquatic systems. This review serves to highlight what we need to consider when assessing the susceptibility of sediment dwelling organisms to nanomaterials."

The study calls for more research into whether 'marine snow' - organic detritus that falls through layers of water - acts as a transport system for

nanoparticles and closer examination of bioaccumulation and toxicity in sediment-dwelling species.

The study highlights a large knowledge gap and recommends further research into the factors that determine the fate of [nanoparticles](#) in aquatic systems.

Provided by University of Exeter

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