

# Ocean plastic's new toxic threat



Sophie Dolling in the laboratory.  
Picture: Russell Millard

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TINY pieces of plastic waste soak up a cocktail of toxic chemicals in the ocean, magnifying the risk of contaminating seafood, an Adelaidebased international conference has heard.

The University of Adelaide's Sophie Dolling joined about 1100 delegates from more than 60 countries at the World Fisheries Congress 2021 in Adelaide this week during an online virtual event.

Ms Dolling warned of the "hidden threat" posed by pieces of plastic less than 5mm in size, which attract waterhating chemicals such as pharmaceuticals from wastewater, pesticides and herbicides from farming, PFAS from firefighting foam and "plasticisers".

These chemicals stick to the surface of microplastics at concentrations up to 5000 times higher than in the surrounding water.

"So, when our seafood species are consuming these plastics, they are not only getting the bad effects of the plastic pollution but also the chemical pollution on the surface of the plastic," the PhD candidate said.

"This can cause bioaccumulation and biomagnification of both plastics and chemical pollutants in the seafood species, which can ultimately lead to contamination at the top of the food chain – that being us."

Ms Dolling developed a method to detect a range of chemical pollutants, both on the surface of microplastics and in biological tissues.

She will now assess the potential for contamination of commercially important fish species.

Field trials in the Adelaide Dolphin Sanctuary, at North Haven, involve strategically placed microplastics inside really fine mesh bags in the water, “to see what chemical pollutants are actually attaching to the microplastics”.

The 12-month trial began in April, and Ms Dolling is about to start analysing the preliminary results.

She still eats seafood but is more fussy since going into this area of research.

“In South Australia, we are lucky that we do have quite progressive plastic regulations ... we’re not using many single-use plastics anymore and we’re going to build on that,” Ms Dolling said.

“And the fishing industry is more heavily regulated in Australia than in other parts of the world.

“So, that is a little habit change I have made in the past couple of years, to only eat Australian seafood, especially SA seafood.”