

Fish eat plastic like teens eat fast food, researchers say

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A Damselfish larva that has ingested tiny plastic particles

Young fish become hooked on eating plastic in the seas in the same way that teenagers prefer unhealthy fast food, Swedish researchers have said.

Their study, reported in Science, found exposure to high concentrations of polystyrene makes perch larvae favour the particles over more natural foods.

As a result of exposure to plastic, the young perch are smaller, slower and more susceptible to predators.

The researchers called for plastic micro-beads to be banned in cosmetics.

Chemical degradation

Concerns have been growing about the amount of plastic in the seas in recent years.

A **study that came out last year** estimated that about 8 million tonnes of plastic waste enters the oceans annually.

When exposed to UV radiation, chemical degradation and the movement of the waves, this plastic breaks down into tiny pieces. Those smaller than 5mm are referred to as micro-plastics. The term also covers plastic micro-beads from personal care products.

Scientists have been worried that these tiny fragments can build up in the guts of marine creatures and can also leach toxic chemicals.

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I think of it as unhealthy fast food for teenagers, and they are just stuffing themselves

Dr Oona Lonnstedt, Uppsala University



Young perch preferred plastic particles over natural foods in this study

To look at the impact of micro-plastics on the early life stages of fish, Swedish researchers exposed perch larvae to different concentrations of polystyrene in water tanks.

In the absence of micro-plastics, about 96% of the eggs successfully hatched. This dropped to 81% for those exposed to large quantities.

'Stuffing themselves'

The fish that did hatch in these waters with high quantities of micro-plastics were "smaller, slower, and more stupid" than those that hatched in clean waters, lead author Dr Oona Lonnstedt, from Uppsala University, said.

When exposed to predators, about half the young perch from clean waters survived for 24 hours. Those that had been raised with the strongest plastic concentrations were all consumed by pike over the same period.

Most surprising for the research team was the way that plastic changed food preferences.

"They all had access to zooplankton and yet they decided to just eat plastic in that treatment. It seems to be a chemical or physical cue that the plastic has, that triggers a feeding response in fish," Dr Lonnstedt told BBC News.



Global plastic production is estimated to be 300 million tonnes annually with a significant amount ending up in the world's oceans

"They are basically fooled into thinking it's a high-energy resource that they need to eat a lot of. I think of it as unhealthy fast food for teenagers, and they are just stuffing themselves."

In the study, the researchers link the decline of species such as perch and pike, observed in the Baltic Sea over the past two decades, to increased deaths at the juvenile stage. They argue that if plastics are impacting young fish across species, it could have "profound effects" on ecosystems.

'Silent threat'

Other researchers said the new study was an important step forward in understanding the mechanisms of impact on marine species.

"The observations we have so far are about the amount of plastic we find in the seas, and the amount we find within animals," commented Dr Erik Van Sebille from Imperial College London.

"Your intuition would say it is not good for a fish to eat plastic, but scientifically you want to prove it, you want to be able to show what the impacts plastic are having, and that has been very hard to determine until now, and that's why this is such a big paper."

The **US has banned the use of plastic micro-beads** in cosmetic and personal care products and there is growing pressure in the UK and Europe to do the same.

"It's body care products, it's not just toothpaste and scrubbers; some mascara and some lipsticks have plastic in them too," said Dr Lonnstedt.

"It's a silent threat that we haven't really thought about before. We need to ban the products that have micro-beads in them."

Ministers in the UK **have already said** that if the EU cannot adopt a common position on the issue then Britain is prepared to ban them unilaterally.

The House of Commons Environment Audit Committee will be questioning witnesses about micro-plastics next week.

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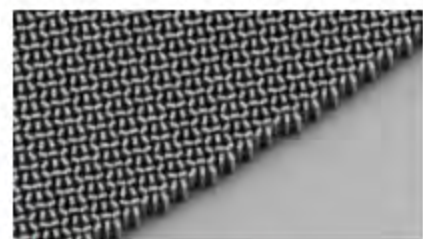
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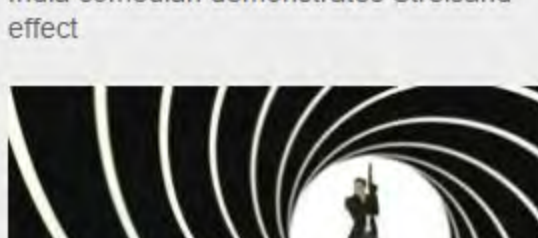
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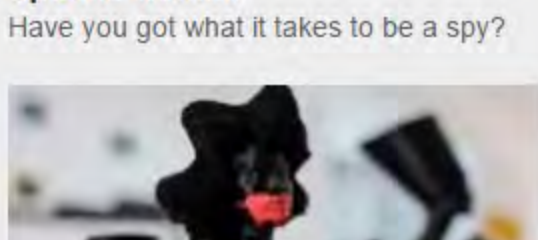
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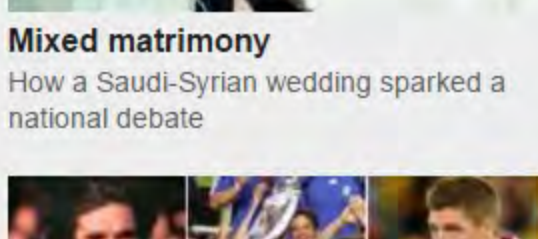
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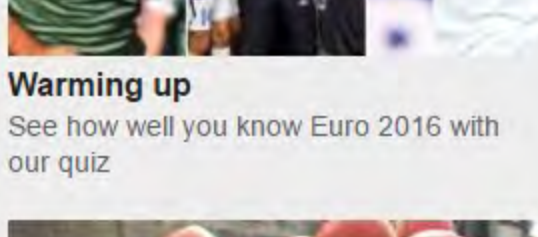
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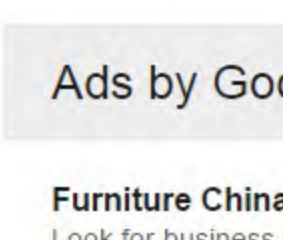
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