**Plankton are eating PLASTIC: Feasting on ocean litter could devastate marine ecosystems, scientists warn**

* **Biologists say tiny grains of plastic are interfering with plankton feeding**
* **They captured copepods ingesting fluorescent plastic debris on video**
* **It highlights the harm that plastic litter is having on the world's oceans**
* **Around eight million tons of plastic is dumped in the ocean every year**

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It has been found inside the digestive tracts of turtles, sea birds and whales, but it appears plastic litter in our oceans is also clogging up the insides of the tiny plankton that many larger sea creatures feed on.For the first time copepods – tiny creatures that feed on algae in the ocean – have been filmed eating grains of plastic while they are feeding.The video shows microscopic polystyrene beads being drawn towards the creature by its legs and eaten. The beads can be seen accumulating in the creature's body.

### WHO DUMPS THE MOST?

So much plastic is dumped into the sea each year that it would fill five carrier bags for every foot of coastline on the planet, scientists have warned. More than half of the plastic waste that flows into the oceans comes from just five countries: China, Indonesia, Philippines, Vietnam and Sri Lanka. The only industrialized western country on the list of top 20 plastic polluters is the United States at No. 20. The U.S. and Europe are not mismanaging their collected waste, so the plastic trash coming from those countries is due to litter, researchers said.

While China is responsible for 2.4 million tons of plastic that makes its way into the ocean, nearly 28 percent of the world total, the United States contributes just 77,000 tons, which is less than 1 percent, according to the study published Thursday in the journal Science.

An estimated eight million tons of plastic is dumped in the oceans every year, with fishing nets and plastic bags causing severe problems for some large species.However, even after these have broken down – many plastic bags are designed to degrade in the environment into tiny scraps – they can still have an impact.

Dr Matthew Cole, a researcher at the Plymouth Marine Laboratory who has been researching the impact of so called 'microplastics' on marine ecosystems, said the impact of microplastics on plankton has been largely overlooked until recently.Writing in the journal **[Environmnental Science and Technology](http://pubs.acs.org/doi/abs/10.1021/es400663f%22%20%5Ct%20%22_blank)**, he and his colleagues identified at least thirteen zooplankton creatures capable of ingesting a variety of different sized polystyrene beads.These included the larvae of important marine animals like crabs and oysters.Dr Cole and his colleagues said: 'Microplastics are ingested by, and may impact upon, zooplankton.'We further observed microplastics adhered to the external carapace (the upper part of the shell) and appendages of exposed zooplankton.

**Plastic litter like this plastic bag enough can take 10 to 20 years to break down, causing problems for large marine animals like turtles, which can mistake them for jelly fish. Even once they break down, the plastic forms floating debris known as microplastics, which are eaten by zooplankton and so end up in the food chain**

'Exposure of the copepod Centropages typicus to natural assemblages of algae with and without microplastics showed that microplastics significantly decreased algal feeding. 'Our findings imply that marine microplastic debris can negatively impact upon zooplankton function and health.'

Zooplankton form a crucial part of the marine food chain, providing food for most larger filter feeders and many shellfish.The consumption of microplastics by zooplankton may be one of the main ways chemicals from plastics end up in the food chain and accumulate in larger animals like whales. If the zooplankton is also feeding on less algae as a result of ingesting plastic, then it could also affect the energy and nutrition they contain for larger animals.

An estimated eight million tons of plastic is dumped in the ocean every year. The image above shows the plastic debris washed a shore on a beach in the Azores in the mid Atlantic Ocean

Dr Cole teamed up with film-makers from Five Films to capture video of copepods feeding on fluorescent green beads of plastic.

Verity White, who directed the film as part of a wider project on the impact of plastic litter in the oceans, told New Scientist that the plankton were constantly feeding on the plastic.

In some cases it can pass through the creatures within hours, but in others the plastic can remain in their intestinal tracts for up to seven days.

Miss White said: 'We were looking inside just one drop of water. The plankton were swimming and processing food non-stop.'

Her film about plastic in the oceans won Environmental Film of the Year at the Environmental Photographer of the Year awards at the Royal Geographical Society.