

# Whales eat 10m micro pieces of plastic a day - study

**Damian Carrington**  
Environment editor

Filter-feeding whales are consuming millions of particles of microplastic pollution a day, according to a study, making them the largest consumers of plastic waste on the planet.

The central estimate for blue whales was 10m pieces a day, meaning more than 1bn pieces could be ingested over a three to four-month feeding season. The weight of plastic consumed over the season was estimated to be between 230kg (507lb) and 4,000kg (4 tonnes).

In highly polluted areas, or if plastic pollution continues to rise, the whales could be eating 150m pieces a day, the researchers warned. The data was collected off the coast of California, but the scientists said other parts of the world were more polluted.

The research is the first to estimate microplastic consumption for blue, fin and humpback whales, which are baleen whales and use filters to catch their prey. It found nearly all the microplastics consumed were



◀ Blue whales are estimated to consume 1bn microplastics over a three to four-month feeding season

PHOTOGRAPH: ROBERT SMITS/GETTY

those same fish that the humpback whales are eating.”

Huge amounts of plastic waste are dumped in the environment and microplastics have polluted the entire planet. At least 1,500 wild species have been reported to ingest plastic. People consume the tiny particles via food and water as well as breathing them in. They were revealed to be present in human blood in March.

The research, published in the journal *Nature Communications*, combined a series of measurements to estimate the whales' microplastic consumption. Tags on 191 blue, fin and humpback whales recorded more than 36,000 feeding lunges, and airborne drones measured how much water each lunge captured.

The density of the prey in the water was evaluated using acoustic devices and the microplastic in the prey was estimated using previous research and measurements of plastic pollution in the water column. The scientists found baleen whales mainly fed at depths of between 50 and 250 metres, which is also where the most microplastics are found.

Humpback whales, which are smaller than blue whales, were estimated to swallow up to 4m microplastics a day when feeding on krill and 200,000 particles when feeding on fish such as anchovies.

The researchers think their estimates are conservative, as plastic pollution will have increased since the data was collected and they made conservative estimates of how much plastic krill and fish consume.

in the krill and fish the whales ate, rather than in the water. The plastic particles are similar in size to the food the smaller organisms eat.

The whales could be harmed by the microplastics and the toxic chemicals they carry, and previous work has found plastic-derived contaminants have been identified in their blubber. The mammals are still recovering from the whaling trade and face other human-caused impacts such as noise and ship strikes.

“What we found was surprising - really high numbers of daily plastic ingestion,” said Dr Shirel

Kahane-Rapport, at California State University, Fullerton, who led the study. “We imagine that it will have some sort of impact, but we don't know the exact health effects. This is the first step to figuring that out.”

**‘We're eating the same fish that humpback whales are eating’**

**Dr Matthew Savoca**  
Stanford University

There are far more polluted ocean basins in the world than the coast of California, Kahane-Rapport said, including the North Sea, the Mediterranean and south-east Asia.

“Whales feeding in those areas certainly might be at greater risk than off the coast here in the western US,” said Dr Matthew Savoca, at Stanford University, who was part of the team that conducted the study.

“It's a sad story about whales, but also it's a story about us,” Savoca added, because human diets were also affected. “Whether it's cod or salmon or other fish, we are eating

# MP urges inquiry into mass crab die-offs at freeport site

**Damien Gayle**  
Environment correspondent

The chairman of the environment select committee has called for an urgent investigation into whether dredging around a freeport development in Teesside has caused mass die-offs of crabs on the north-east coast.

In a letter sent yesterday, Sir Robert Goodwill told Thérèse Coffey, the environment secretary, his committee had heard evidence that the repeated mass deaths were having a “profound and long-lasting impact ... on fishing communities”.

He called for the urgent appointment of an independent expert panel to investigate the cause of the deaths.

Until the impact of the dredging can be ascertained, Goodwill said, large-scale dredging in the area should be avoided and “maintenance dredging should be kept to the minimum level needed to keep the port operational until the expert panel's investigation is completed”.

Since autumn last year, residents of coastal communities close to the mouth of the River Tees have been raising the alarm over the deaths of crustaceans. In February crab and

lobster fishers from Hartlepool to Scarborough were reporting that their catches were a 10th of what they would normally expect at that time of year.

The effects of the die-offs were cascading up the food chain, with seal rescue volunteers reporting emaciated seal pups, which would normally scavenge seabeds for crustaceans (below) and other bottom-dwellers, washing ashore.

An initial report by the Department for the Environment, Food and Rural Affairs (Defra) blamed a naturally occurring algal bloom.

But independent researchers have



**£3.2bn**

Potential value to the economy of Teesside freeport project, built on Europe's largest brownfield site

blamed chemicals released by dredging operations linked to the current development of the government's flagship freeport at the mouth of the Tees.

The development, on Europe's largest brownfield site, is expected to bring as many as 18,000 new jobs to the area - which has suffered significantly from de-industrialisation since the 1980s - alongside benefits to the economy worth £3.2bn.

But it has required extensive demolition, rebuilding and dredging work, and some fear this has disturbed pollutants that have lain dormant in the land and the surrounding seabed for decades.

Goodwill's letter comes after the Defra select committee heard evidence from Dr Gary Caldwell, a marine biologist from Newcastle University, who warned that pyridine detected in high concentrations in dead crabs could have been released by dredging. The compound has historically been produced from coal tar.

“There is clearly a need for further data and research on the causes of the mass die-off,” Goodwill's letter said.

“This must include urgent investigation of the potential sources of pyridine that [Dr Caldwell] identified in his oral evidence, including more extensive sampling of the sediments in the bed of the Tees estuary to create a map of potential sources of pyridine in proximity to maintenance dredging and the wider area.”

Defra has been contacted for comment.

## The co-operative bank

### Notice to The Co-operative Bank, smile and Britannia savings customers

On 22/09/2022 The Bank of England base rate changed from

**1.75%**

to

**2.25%**

To find out more information on any changes to your interest rates visit [www.co-operativebank.co.uk/savings](http://www.co-operativebank.co.uk/savings), [www.smile.co.uk/savings](http://www.smile.co.uk/savings), or visit your nearest branch.

The Co-operative Bank p.l.c. is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority (No.121885). The Co-operative Bank, Platform, smile and Britannia are trading names of The Co-operative Bank p.l.c., P.O. Box 101, 1 Balloon Street, Manchester M60 4EP. Registered in England and Wales No.990937. Credit facilities are provided by The Co-operative Bank p.l.c. and are subject to status and our lending policy. The Bank reserves the right to decline any application for an account or credit facility. The Co-operative Bank p.l.c. subscribes to the Standards of Lending Practice which are monitored by the Lending Standards Board.

MKT89968 11/2022