

Ingestion of plastic found among small ocean fish

Southern California researchers say about 35% of fish they collected in the northern Pacific Ocean in 2008 had plastic in their stomachs. The study shows the troubling effect floating litter is having on marine life, the researchers say.

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Southern California researchers have found evidence of ingestion of plastic among small fish in the northern Pacific Ocean in a study that they say shows the troubling effect floating litter is having on marine life in the far reaches of the world's oceans.

About 35% of the fish collected on a 2008 research expedition off the West Coast had plastic in their stomachs, according to a study to be presented Friday by Algalita Marine Research Foundation and the Southern California Coastal Water Research Project.

The fish ingested two pieces of plastic on average, but scientists who dissected hundreds of plankton-eating lanternfish found as many as 83 plastic fragments in a single fish.

The study raises the concern that garbage, as it works its way through the food chain, could be ingested by humans.

It also underscores a problem that has drawn increasing attention in recent years: floating marine debris — most of it discarded plastic — that has accumulated in vast, slow-moving ocean currents known as gyres.

Though discarded bottles, containers and fishing line are slowly broken down into small fragments by pounding waves and sunlight, scientists don't know if they ever totally dissolve.

Scientists already have documented the dangers posed by floating trash to turtles, seabirds and marine mammals that eat or become entangled in the litter. But researchers said this study was the first to try to quantify the effect on the smaller fish.

Algalita, a Long Beach-based nonprofit named for its founder's 50-foot catamaran, conducts scientific research on the global spread of marine debris but also advocates for limiting society's "plastic footprint" on rivers and oceans. The Costa Mesa-based Coastal Water Research Project is an environmental research institute funded by 14 government agencies.

For the study, researchers trawled 1,000 miles off the coast for fish living among floating debris particles in an area of the ocean known as the Eastern Garbage Patch. They dissected and analyzed the fish at a lab in Costa Mesa.

The vast majority of fish they found were lanternfish, deep-sea dwellers that come to the surface after dark to feast on plankton. Because they are one of the most common fish in the ocean and a food source for such popular gamefish as tuna and mahi-mahi, the discovery of plastic fragments raises questions about the health effects on marine life and possibly human consumption.

"As the larger pieces of plastic break down they mimic the size, shape and texture of natural food," said Charles Moore, the founder of Algalita and an author of the study. "What we're seeing is the entire food web being contaminated by plastic."

The study was published in the scientific journal *Marine Pollution Bulletin*, and the authors plan to share their findings Friday at the Plastics Are Forever International Youth Summit in Long Beach, where teenagers from the United States and 13 other countries are gathering to share ideas on how to combat plastic pollution.

The research also will be presented later this month at the Fifth International Marine Debris Conference in Honolulu.

tony.barboza@latimes.com