

FOUND IN ONE BIRD...

Shown at actual size, all these pieces of plastic were trapped in the gut of a flesh-footed shearwater.



BREEDING IMPACTS

As plastic is ingested, polychlorinated biphenyls (PCBs) leak into a bird's blood, causing havoc with hormone levels and reproductive failure. Breeding pairs on Lord Howe Island have declined by more than **60%** since the 1970s.

TOXIC COCKTAIL

Mercury, cadmium and arsenic, all found in plastic, damage a bird's nervous system and lead to cancer. Research on Lord Howe Island has shown that some birds have more than **6000** times the mercury level known to be toxic to humans.

NO ESCAPE

On Lord Howe Island up to **96%** of flesh-footed shearwater chicks studied were found to have plastic in their stomachs.

BIG PROBLEM

The largest piece of plastic found in the stomach of a flesh-footed shearwater was **7.5cm** in length.

Death by plastic

IT'S EASY TO SEE why idyllic Neds Beach on Lord Howe Island (LHI) was voted Australia's best beach in 2008, with its glistening white sand lapped by a turquoise ocean. However, look more closely at the high-tide line and you'll find a colourful collection of tiny plastic scraps.

The quantity of 'micro-plastic' in the oceans is increasing as marine debris, which has accumulated over the last few decades, starts to break down into ever smaller pieces. Estimates have put concentrations of micro-plastic per square kilometre of sea at up to 200,000 pieces in some areas.

While much has been heard of the North Pacific Gyre or 'Garbage Patch' – a 700,000sq.km oceanic concentration of rubbish (see *Oceans of rubbish*, AG 101) – joint studies by the LHI Museum and the Tasmanian Museum and Art Gallery (TMAG) have shown that there's a problem much closer to home. Research conducted during 2010–11 has revealed that 96 per cent of flesh-footed

shearwater chicks examined on the island have ingested plastic fed to them by their parents, who have mistaken it for food. Examination of the stomach contents of adult birds returning from their annual migration to the North Pacific showed no plastic at all, so the material these hard-working parents are feeding to their chicks must have been collected locally, probably swept off the Australian coast into the Tasman Sea by the East Australian Current. One dead chick was found to have more than 200 pieces of plastic in its stomach. Ingested plastic decreases stomach space available for food and can block the bird's intestines. Sharp pieces can puncture the stomach, leading to infection and death, as can the accumulation of toxic chemicals. The kinds of items being recovered from the chicks' guts include golf tees, pen lids, bottle caps and plastic-bag ties.

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