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Study shows non-lethal impacts of seabirds' plastic ingestion

An IMAS-led study of seabirds that had ingested plastic debris has revealed a range of non-lethal impacts on their health and physiology.

While seabird deaths due to swallowing plastic debris or becoming entangled in it have received global attention, the non-lethal effects on seabirds that survive plastic ingestion are less well-known.

The study led by IMAS' Dr Jennifer Lavers and published in the journal Environmental Science & Technology has found that plastic ingestion can have a significant negative impact even on superficially healthy seabirds.

The research, which included scientists from Lord Howe Island Museum and the UK's Natural History Museum, analysed blood and plastic samples collected from Flesh-footed Shearwaters on Lord Howe Island.

"Flesh-footed Shearwaters populations are declining across the south west Pacific Ocean and Western Australia's south coast," Dr Lavers said.

"Plastic ingestion has been implicated in this decline but the mechanisms by which it affects shearwaters are poorly understood.

"Our study found that birds which ingested plastic had reduced blood calcium levels, body mass, wing length, and head and bill length.

"The presence of plastic also had a negative impact on the birds' kidney function, causing a higher concentration of uric acid, as well as on their cholesterol and enzymes."

Dr Lavers said the study found that the simple presence of plastic was enough to cause negative consequences, regardless of the amount.

"Our data did not show a significant relationship between the volume of plastic ingested and the health of individuals, suggesting that any plastic ingestion is sufficient to have an impact.

"Until now there has been scant information on the blood composition of seabirds in the wild, many of which have been identified as threatened species.

"Understanding how individual seabirds are affected is also further complicated by the fact they spend little time on land or at breeding colonies, and most mortalities occur at sea where the causes of death are often unknown.

"The complex range of issues that face seabirds - from habitat loss and climate change to fishing and marine pollution – make it vital that we better understand the impact of particular challenges such as plastic debris," Dr Lavers said.

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Media contact: Andrew Rhodes (03) 6226 6683, email: ajrhodes@utas.edu.au

Information released by:
Communications and Media Office
University of Tasmania
+61 3 6226 2124
Media.Office@utas.edu.au
Twitter.com/utas_newsroom