

## **Seabird feeding associations and plastic pollution in the Haurauki Gulf**

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The potential threats of plastic pollution on seabirds within the Haurauki Gulf, New Zealand was assessed by investigating the abundance and distribution of plastic pollution amongst three regions of the gulf and the distribution and range of seabird species during winter. Samples of plastics within in the gulf were taken by trawling samples from along the water's surface. Trawls were taken from both within and outside of small localized convergence lines. Bird observations examined the distribution and behaviours of seabird species to evaluate their potential for interaction with plastic. Dead birds collected opportunistically were necropsied to determine any direct evidence of plastic ingestion. A total of 66 water samples were collected using a plankton net. Trawls were recorded as being within one of three designated areas in the gulf and from either an area of convergence or non convergence. Plastic was recorded by number per trawl, type, colour and length. Plastic was evident in all three regions of the gulf and the Waitemata Harbour contained the greatest abundance. Both user and industrial plastics were found, and consisted of colours and lengths likely to be mistaken as food items. Plastics and debris were more concentrated on convergence zones. The diversity of seabird species observed utilized a range of feeding methods, predisposing a subset of the community to a higher rate of ingesting plastics. Fluttering Shearwaters, Cape Pigeons, White Faced Storm Petrels and Buller's Shearwaters were the species at greatest risk. The distribution between plastics and at risk seabirds however did not overlap, thus reducing the likelihood of their interaction. Necropsies showed no direct evidence of ingestion, however sampling methodology, using beach wrecked birds is questioned. The Haurauki Gulf is considered to be significantly less polluted by plastic debris than other severely polluted areas cited in literature, however plastic debris is still present at an abundance that the problem should not be dismissed. Further research is required