



# 10<sup>th</sup> International Penguin Conference

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DUNEDIN | NEW ZEALAND – AOTEAROA 24 – 28 AUGUST 2019

## ABSTRACTS – ORAL PRESENTATIONS

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DODINO, Samanta

***A tale of three “cities”: variations by site and ages in isotopic composition and mercury concentrations of Magellanic penguin during the pre-molt stage***

**Presenter:** Samanta Dodino *ELIGIBLE FOR STUDENT ORAL AWARD*

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**Abstract:** Penguins are good indicators of environmental changes and respond to oceanographic conditions within their foraging grounds. We studied adult and juvenile Magellanic penguin (*Spheniscus magellanicus*) trophic niches using stable carbon ( $\delta^{13}\text{C}$ ) and nitrogen ( $\delta^{15}\text{N}$ ) isotopes and determined their feather mercury (Hg) concentrations. We sampled feathers during the pre-molt stage from three colonies of Tierra del Fuego with different oceanographic conditions and population sizes: Staten (1,000 pairs), Martillo (5,000 pairs) and Observatorio Islands (70,000 pairs). Adults had higher  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$  values compared with juveniles for the three colonies ( $p < 0.05$ ), and occupied a higher trophic position (TP) that was reflected in their higher Hg concentration. Adults did not differ in  $\delta^{15}\text{N}$  values, while  $\delta^{13}\text{C}$  values differed significantly only between Franklin Bay on Staten Island and Martillo Island. We found significantly higher adult Hg concentration and a wider isotopic niche in Observatorio Island compared with Franklin Island and Martillo Island, despite their similar TP. Meanwhile, juveniles from Martillo Island had significantly higher  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  values relative to the other colonies. Juveniles had similar TP but differed in Hg concentration, with the lowest Hg concentrations at Martillo Island and the highest at Observatorio Island. These results suggest that foraging area differences among colonies may explain the observed patterns in Hg concentration and isotopic niche more so than TP. This demonstrates the plasticity of these penguins according to the oceanographic variability in their preferred foraging grounds and demography with positive implications in terms of conservation under a climate change scenario.

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