

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p>Ninth Meeting of the Population and Conservation Status Working Group <i>Swakopmund, Namibia, 25 May 2026</i></p> <p>Assessment of mercury (Hg) accumulation in tissues and organs of the Black-browed albatross (<i>Thalassarche melanophris</i>) in the Southwestern Atlantic</p> <p><i>Fernandez Florencia E¹, Seco Pon Juan Pablo¹, Plaul Florencia E^{2,3}, Aquino Víctor N^{2,3}, Mariano-Jelicich Rocío¹, Quadri Adroque Agustina⁴, Cappelletti Natalia E^{2,3}, Miglioranza Karina S. B¹</i></p> <p>1 Instituto de Investigaciones Marinas y Costeras (IIMyC) (FCEyN, UNMDP-CONICET), Argentina</p> <p>2 Laboratorio Ambiental, Departamento de Ambiente y Turismo, Universidad Nacional de Avellaneda, Argentina</p> <p>3 Consejo Nacional de Investigaciones Científicas y Tecnológicas (CONICET)</p> <p>4 Centre for Nature Positive Solutions, School of Science, RMIT University, Australia</p>
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SUMMARY

Mercury (Hg) naturally occurs in the Earth's crust, is a toxic element and the most significant sources of contribution to the environment are metallic mining and the massive burning of biomass. Hg can be transported over long distances through both aquatic and atmospheric pathways. Once biotransformed in methylmercury (MeHg), it becomes highly toxic, accumulating and biomagnifying in food chains. In this study, we provide novel data on total Hg (THg) concentrations in six tissues of the Black-browed albatross (*Thalassarche melanophris*), a pelagic seabird from the Southwestern Atlantic, and analyze the influence of sex, age class and trophic position. The distribution of THg among sampled tissues followed the pattern: liver > gonad > kidney > brain = muscle > mesenteric fat with concentrations (mean \pm SD) of 4.55 ± 4.42 ; 1.68 ± 0.93 ; 1.07 ± 0.31 ; 0.91 ± 0.42 ; 0.87 ± 0.41 ; and 0.16 ± 0.02 $\mu\text{g/g}$ dry weight, respectively. Mercury levels were positively correlated among liver, muscle, and brain. Notably, liver of female showed THg concentrations that exceeded the thresholds associated with acute hepatic toxicity and reproductive impairments in several bird species. Despite sexual size dimorphism, Hg concentrations did not differ significantly between sexes. Overlapping feeding areas indicate that diet, rather than body size, drives Hg accumulation. Overall, our results provide valuable baseline information on Hg levels in seabirds, contributing to assessments of the effectiveness evaluation of the Minamata Convention in the marine environment.