

Can Antarctic Skuas help us to monitor local and global mercury contamination?



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Objectives:

We compare mercury levels recorded in feathers of adults and chicks of Skuas (*Catharacta maccormicki* – *Cma*, and *C. lonnbergi* - *Clo*) from four breeding sites in Antarctic Peninsula (Figure 1). The objective was assessing differences among species, chicks and adults, and among reproductive areas.

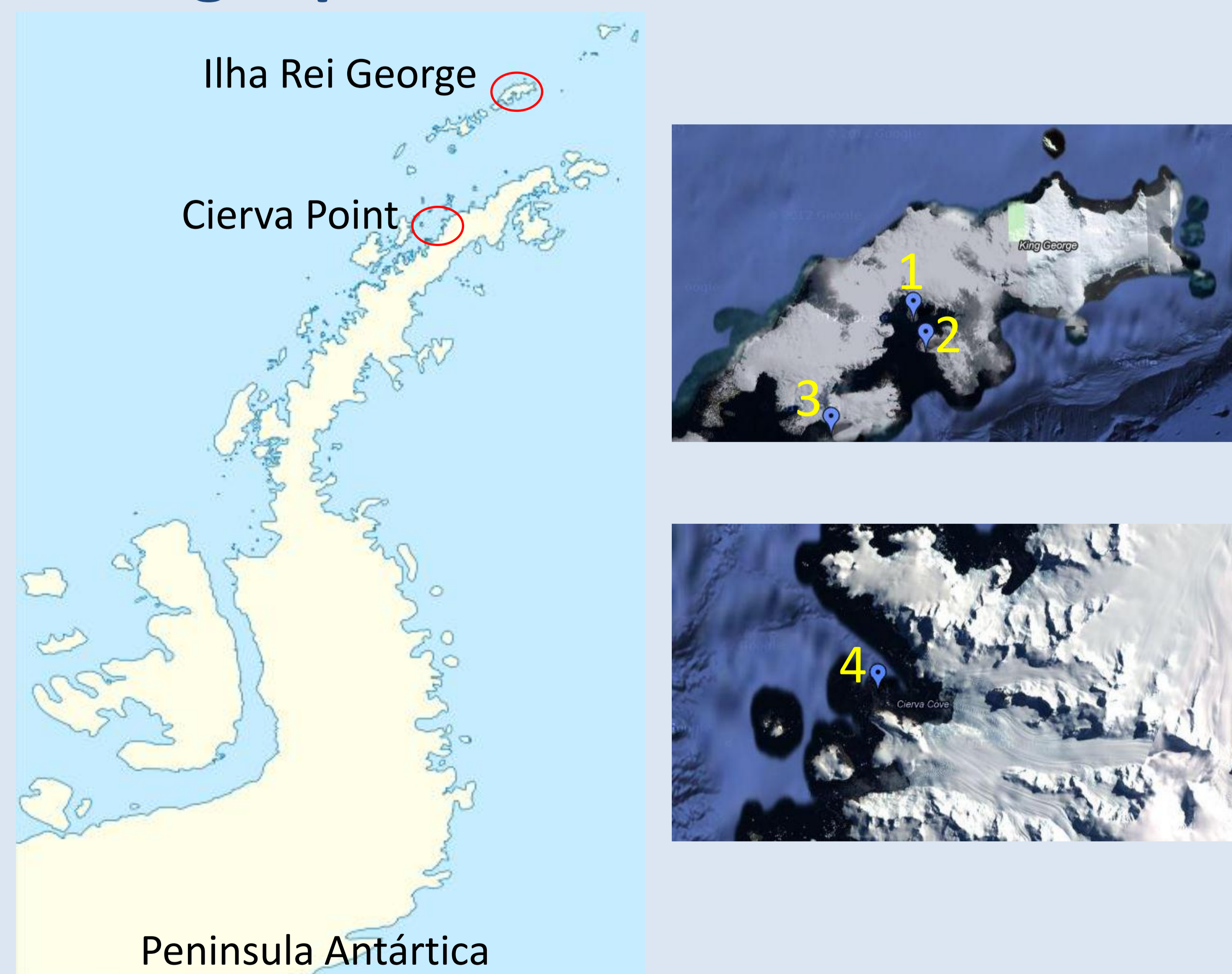


Figure 1. Sites of study: 1. Keller Peninsula, 2. Hennequin Point, 3. Potter Cove, 4. Cierva Point.

Methodology:

All samples (breast feathers) were analyzed in “Radioisotopes Laboratory Eduardo Penna Franca”, at UFRJ. Total mercury was determined using the methodology described by Bastos et al. (1998).

Results:

The table below present the results for species, areas and different ages of sampled Skuas (mg kg⁻¹).

Sites	Species - Age		<i>Catharacta lonnbergi</i>	
	<i>Catharacta maccormicki</i> Adults	Chicks	Adults	Chicks
Admiralty Bay	3.90 ± 1.20 (n=24)	0.62 ± 0.28 (n=29)	1.84 ± 0.64 (n=5)	-
Potter Cove	3.82 ± 1.99 (n=18)	1.59 ± 1.31 (n=4)	1.91 ± 0.90 (n=10)	0.88 ± 0.79 (n=8)
Cierva Point	3.64 ± 1.91 (n=24)	0.62 (n=1)	1.92 (n=1)	-

Cma presented significantly higher mercury levels than *Clo* and chicks ($U' = 306.00$; $p = 0.0012$).

The concentration in different places not differ significantly for species: $KW = 0.6547$, $p = 0.72$ for *Cma*; $U' = 16.00$, $p = 0.1905$ for *Clo*).

Main considerations:

- Feathers are good non-destructive alternative to analyze mercury level contamination;
- Adult *Cma* can be excellent indicators of global mercury contamination = they migrate to more distant areas – as to Europe – and can be more exposed;
- *Clo* and chicks of both species can be great indicators of local mercury contamination = they have presented similar contamination levels = represent Antarctic environment.

Additional studies including other areas and increasing the sample number will help us to confirm this results.

BASTOS et al. 1998. Establishment and analytical quality control of laboratories for Hg determination in biological and geological samples in the Amazon, Brazil. *Ciência e Cultura*, 50: 255-260.



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