

## **Influence of the yellow-legged gull colony (*Larus michahellis*) on the concentration of biolimiting elements in soils and waters**

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During the breeding season, seabirds form large colonies that occasionally concentrate millions of birds. These colonies generate large amount of biomaterials (faeces, cadavers,...) which have high concentrations of trace elements that can be transferred to soils and water [1]. Many studies have addressed the enrichment of N and P [2, 3], but few do so on trace elements [4]. We studied the concentration of biolimiting elements in biomaterials, soil and water of a colony of yellow-legged gull in the Atlantic Islands National Park. Our results showed that soils and waters are clearly enriched in relation to control area (Table 1).

<b>Element</b>	<b>Control area (n=12)</b>	<b>Low density seabirds (n=11)</b>	<b>High density seabirds (n=21)</b>
Zn	105.0±12.0a	75.4±15.0a	164.0±83.0b
Cu	9.0±2.9a	14.1±7.7ab	18.2±6.0b
Mo	13.9±7.7a	10.2±6.8a	25.5±22.0b
Ni	3.5±0.7a	3.7±1.4a	4.7±4.3a
Co	465.0±71.0a	601.0±12.0b	705.0±106.0b
Se	251.0±73.0a	648.0±276.0b	919.0±209.0c

Table 1. Total concentration of trace metals (mg kg<sup>-1</sup>) in soils from the colony in relation to the control area. For the same element different letters denote significant differences (p<0.05).

As a main conclusion, it is worth mentioning an enrichment of these elements in the water and in the soils of the colony (mainly bioavailable fraction) can be a key factor for its primary productivity.

[1] Mataloni et al. (2010) Polar Sci. 4: 405-419. [2] Maron et al. (2006) Ecol. Monogr. 76: 3-24. [3] Otero et al. (2015) Sci. Total Environ. 532: 383-397. [4] Hargan et al. (2017) Sci. Total Environ. 576: 85-98.