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such times of limited food supply Wilson's storm-petrel chicks can minimize their energy expenses by heterothermy: reducing their metabolism and body temperature. As heterothermy is reported to impact development, time spent hypotherm could have negative impacts for their future lives. A proposed consequence is that chicks are forced to fledge in poorer body conditions because of decreased time for development. Here we show the first results of our study of heterothermy and its consequences in a breeding colony of Wilson's storm-petrels at King George Island, Antarctic Peninsula. We investigated the impact of hypothermia on different parameters concerning chick development like blood fat values, immunology, telomere shortening, and growth. Triglyceride plasma values fell with increasing time spent at colder body temperatures within the last days before sampling. However, immune response to a phytohaemagglutinin test were not different in chicks that experienced more frequent hypothermic events than those that always maintained a constant body temperature. As snowfall is predicted to increase on the Antarctic Peninsula due to climate change, the use of heterothermy may ensure chick survival during continuous events of food limitation. The impact of heterothermy on their development and survival may hence become of high importance on the long term for the well-being of colonies breeding in this area.

M – Pollution

1A-M-55: Foraging area rather than trophic level explains mercury concentration in Patagonian rockhopper penguin colonies

Authors: Nicolas Lois[1], Ulises Balza[2], Samanta Dodino[2], Michael Polito[3], Klemens Pütz[4], Rebecka Brasso[5], Andrea Raya Rey[2]

[1]Universidad de Buenos Aires, [2]CONICET - Centro Austral de Investigaciones Cientificas, [3]Louisiana State University, [4]Antarctic Research Trust, [5]Weber State University

Mercury (Hg) is a widely available pollutant in the world's oceans. Its distribution is far from homogenous showing vertical stratification in the water column as well as spatial heterogeneity within and among ocean basins. In the Southern Ocean, penguins are considered effective indicators of Hg in the marine food web because of their relatively high trophic level, vagility combined with discrete and rather accessible reproductive grounds and their unusual feather molting pattern allowing for specific time-integrated sampling. Previous studies have shown elevated Hg concentrations in the South Western Atlantic Ocean. To provide further insights on regional variation in Hg prevalence within this basin we measured Hg concentration and carbon and nitrogen stable isotope composition in feathers of southern rockhopper penguins (*Eudyptes chrysocome*). Rockhopper penguins present population genetic structure in this area and different foraging areas for each genetic cluster. The northern genetic cluster forages at a higher trophic position, but yielded a two- to three-fold lower Hg concentration than the southern one. Interestingly, all adults from the southern cluster exceed the feather toxicity threshold of 5 µg/g. Previous studies also show that the Northern Patagonian Shelf presents lower concentrations compared to southernmost South America, which implies a recurring pattern rather than a particularity. This implies a different vulnerability due to the exposure to Hg for each cluster, but especially for predators feeding on rockhoppers, i.e. marine top predators, gulls and caracaras. Southern colonies could therefore serve as a model to investigate adverse effects of Hg contamination on penguins and downstream in their food webs.

1A-M-56: Blood mercury concentration is related to body condition, breeding success and trophic ecology in Brown Skuas (Stercorarius antarcticus)

Authors: Andrés Ibañez[1], William Mills[2], Paco Bustamante[3], Lara Morales[4], Diego Torres[4], Facundo

Palacio[4], Nadia Haidr[1], Rocío Mariano-Jelicich[5], Richard Phillips[6], Diego Montalti[4]
[1]La Plata Museum, [2]University of Exeter/British Antarctic Survey, [3]CNRS-La Rochelle Université, [4]La Plata Museum (FCNyM-UNLP), [5]UNMdP-CONICET, Universidad Nacional de Mar del Plata, [6]Cambridge University

Mercury (Hg) is a pervasive environmental pollutant that affects seabirds´ physiology with short- and long-term fitness consequences. Brown Skuas (*Stercorarius antarcticus*) are opportunistic top predators and scavengers, and therefore are effective bioindicators of contamination. We measured total mercury (THg) concentration and the stable isotopes of carbon ($\delta^{13}C$, a proxy of feeding habitat) and nitrogen ($\delta^{15}N$, a proxy of trophic position/diet) in blood from breeding adult Brown Skuas at Esperanza/Hope Bay (Antarctic Peninsula) (*N*=49). The aim of the study was to evaluate the influence of individual traits (body condition and sex) and foraging ecology ($\delta^{13}C$ and $\delta^{15}N$ values) on Hg exposure, and to determine the relationship between THg concentration with body condition and breeding success. We fitted general linear models, and the most parsimonious model included sex, sampling date, breeding season, body condition and $\delta^{15}N$ as variables. Mean ± SD THg concentration in blood was 0.82±0.36 μg g^{-1}dw, and was higher in males (*N*=25, 0.89±0.38 μg g^{-1}dw) than in females (*N*=24, 0.75±0.33 μg g^{-1}dw). Adults with higher THg showed lower body condition, and in females, also lower breeding success. In addition, a positive association was observed between THg concentration and $\delta^{15}N$ reflecting bioaccumulation from prey. Males showed higher THg loads than females, probably because females can deposit Hg in eggs, which may explain why females with higher THg were less likely to fledge chicks. Together, these results indicate that Hg has deleterious effects on reproduction in adult skuas, with potential long-term repercussions at the population level.

1A-M-57: Ventral feathers contained the highest mercury level in brown bobby (Sula leucogaster), a pantropical seabird species

Authors: Gabriel Bighetti[1], Janeide Padilha[1], Larissa Cunha[1], Olaf Malm[1], Patrícia Mancini[1]
[1]Federal University of Rio de Janeiro

Seabirds are extensively used as environmental biomonitors and feathers are among the most analyzed matrices because they are one of the main excretory pathways to detoxify the bird's body of environmental contaminants. Still, there is a variation in contamination level between the different feathers of seabird species, driven by diet and physiology, such as molt strategy and feather formation sequence. We measured total mercury (THg) concentration in different types of feathers (wing, tail, ventral and dorsal) of the same individual in adults and juveniles of brown boobies (Sula leucogaster) from the northern coast of Rio de Janeiro state, Brazil. Brown booby adults and juveniles had higher THg concentration (μg.g-1 d.w.) in wing and ventral feathers compared to dorsal and tail feathers. This difference may be explained by the fact that feathers grow in a specific sequence during molts leading to different THg concentrations in each type of feather. Additionally, juveniles had significantly lower concentrations of THg than adults in all feather types, which may be explained by the shorter life span, leading to less time to bioaccumulate Hg in their body. It is essential to choose carefully which feather type is more suitable to be used as a biomonitor of THg contamination in a particular species. For brown boobies, we suggest the use of ventral feathers, which represent the highest Hg concentration, are easy to sample and do not impair the seabird's flight ability.

1A-M-58: Are microplastics accumulating in the foodweb of the endangered Galápagos Penguin, Spheniscus mendiculus? Modelling microplastics bioaccumulation and biomagnification potential in