

Estudante: Pedro Baes Caetano

Coorientadora: Prof.^a Dra. Carolina Reigada Montoya

Instituição: Universidade Federal de São Carlos UFSCar / Programa de Pós-Graduação em Ecologia e Recursos Naturais PPG-ERN (nível mestrado)

Instituição PMP: Instituto de Pesquisas Cananéia IPeC

Congresso: 7IMDC 7th International Marine Debris Conference – link: <https://www.7imdc.org/> - Track 2 (research) – 2.8 IMPACTS OF PLASTIC MARINE DEBRIS ON MARINE WILDLIFE

Abstract 1

Title: “Plastic as a potential driver for starvation in seabirds beach-cast in Brazil.”

Seabirds are the most threatened birds in the world and there are many threats that stress seabird populations. However, one threat that is rising upon the conservation of these animals is plastic pollution. The major data published about plastic ingestion relies on seabirds and, since plastic pollution seems to be unstoppable, it's now arising in science the understanding of plastic ingestion and its consequences on seabird populations and health. The main causes of death related are obstruction of the gastrointestinal tract, and its rupture, leading to sepsis. Little is known about the secondary impacts, although, it is undeniable the impact on seabird health, rising concern. In South Atlantic, there is a lack of knowledge of anthropogenic threats including plastic impacts on many seabird species. It is not clear how sublethal effects of less visible threats, such as plastic pollution, take part in cause of death of animals that die and wash up along Brazil's coastlines. Given the above, our aim is to report threats to seabirds in South Atlantic focusing on the relation of plastic ingestion on cause of death from stranded seabirds in southeast Brazil. Full necropsies of 368 seabirds were performed by veterinary pathologists between 2017-2019 comprising 10 species through daily monitoring efforts of 120.94 coastal km in Southeast Brazil, and we related the pathologies identified to plastic ingestion. Based on external exam, anatomopathological and histopathological examination, the main pathological processes (fishing interaction, oiling, renal insufficiency, respiratory failure, starvation, trauma, secondary infections, and parasitism) and cause of death (disease/infection, drowning fisheries, drowning non-fisheries, euthanasia, neoplasm, oiling, renal insufficiency, starvation, trauma and unknown) were diagnosed. We used generalized additive models (GAMs) to determine whether the amount and mass of plastic ingested were significantly related to cause of death and by the main pathological processes. Nearly half (49,18%) of 368 seabirds had been influenced by anthropogenic activity at time of death (drowning due to fisheries, plastic ingestion and oiling). Plastic ingestion was accounted for the Cape petrel (FO=100%, N=2), the Sooty shearwater (FO=67%, N=3), the Great shearwater (FO = 60%, N=10) the Wilson's storm petrel (FO=50%, N=2), the White-chinned petrel (FO=42%, N=24), the Scopoli's shearwater (FO=37%, N= 38), the Black-browed

albatross (FO=38%, N=13), the Manx shearwater (FO=24%, N=66), the Magellanic penguin (FO=20%, N=145) and The brown booby (FO=13%, N=40). The Great shearwater had ingested the greatest amount (mean=19.6, SE= 8.4198) and mass of plastic (mean=407.58, SE= 166.6835). We also identified 4 potential plastic obstructions, yet it wasn't account for primary cause of death, but contributive. We found a link between starvation cause of death and ingested plastic, especially in tube-nosed seabirds when it comes to starvation as a pathology. Plastic may contribute to the starvation deaths of these species, a key finding with significant ramifications for seabirds worldwide. The data presented here is important mostly to diagnose threatened species in Brazil and to the understanding of secondary effects of plastic pollution. Furthermore, it is important to identify potential bioindicator species for plastic pollution in South Atlantic.

04 de Maio de 2022

Pedro Baes Caetano

Pedro Baes Caetano